

Agua Fria Union High School District No. 216

Chemical Hygiene Plan

Revised August 3rd, 2026

Table of Contents

<u>I. Regulatory Guidance</u>	3
<u>II. Chemical Hygiene Officer</u>	4
<u>III. Chemical Hygiene Plan — Overview</u>	6
<u>IV. Employee Responsibilities and Safe Laboratory Practices</u>	8
<u>V. Chemical Storage Rules and Procedures</u>	10
<u>VI. Laboratory Chemical Safety Rules and Procedures</u>	13
<u>VII. Facilities and Safety Equipment for Science Laboratories</u>	17
<u>VIII. Employee Training</u>	19
<u>Appendix A — Chemicals Approved for Local Purchase</u>	21
<u>Appendix B — Science Safety Guidelines for Teachers</u>	23
<u>Appendix C — Student Science Safety Rules and Procedures Agreement</u>	25
<u>Appendix D — Science Chemical Review List</u>	26
<u>Appendix E — Chemical Storage Inspection Checklist</u>	30
<u>Appendix F — Laboratory Safety Inspection Checklist</u>	32
<u>Appendix G — Chemical-Specific Safety Procedures</u>	33
<u>Appendix H — Paramount Fume Hood Safety and Operation</u>	38
<u>Appendix I — Paramount Fume Hood Routine Maintenance</u>	42

Select a section title to jump directly to that section.

I. Regulatory Guidance

The Agua Fria Union High School District No. 216 Chemical Hygiene Plan establishes procedures for protecting employees and students from chemical hazards in school science laboratories. The plan is based on the following federal safety standards and professional guidance:

- [OSHA Hazard Communication Standard, 29 CFR § 1910.1200](#): Establishes requirements for chemical hazard classification, container labeling, Safety Data Sheets, and employee training.
- [OSHA Laboratory Standard, 29 CFR § 1910.1450](#): Requires employers that use hazardous chemicals in laboratory settings to develop and implement a written Chemical Hygiene Plan.
- [Appendix A to 29 CFR § 1910.1450—National Research Council Recommendations Concerning Chemical Hygiene in Laboratories](#): Provides recommended practices for developing and maintaining an effective Chemical Hygiene Plan. Appendix A is guidance and does not create additional regulatory requirements.
- [CDC/NIOSH School Chemistry Laboratory Safety Guide](#): Provides practical guidance to help high school science teachers identify chemical hazards, implement appropriate precautions, and maintain a safe laboratory environment.

Together, these standards and guidance documents provide the foundation for the district's chemical safety procedures, employee training requirements, laboratory practices, and chemical storage protocols.

II. Chemical Hygiene Officer

Chemical Hygiene Officer Designation

The Chemical Hygiene Officer for each high school shall be a member of the science department or administrative staff as assigned annually by the Principal.

_____(Name of Person) has been appointed Chemical Hygiene Officer at _____ (Name of School) Principal's Signature: _____ Date: _____

A copy of this completed form is to be filed with the Chemical Hygiene Plan in the Principal's office of each high school. A copy is to be submitted to the Science Department Chair. A copy is to be submitted to the Science Curriculum Specialist.

Chemical Hygiene Officer Duties

Chemical Hygiene Officers have the duty and responsibility of monitoring the Chemical Hygiene Plan at their respective schools. A Chemical Hygiene Officer will be appointed at each high school on an annual

Their duties will include:

1. Being familiar with all aspects of the Chemical Hygiene Plan, especially chemical storage and safety provisions in the science area.
2. Serving as the school contact for chemical-safety information and providing annual employee training.
3. Being a resource for employees at the school on matters involving the use of chemicals in the science laboratory.
4. Inspecting safety equipment at the beginning of each semester and cooperating with the annual inspection of laboratories and chemical storage areas.
5. Reporting to the school principal, the Science Curriculum Specialist and any other persons deemed necessary, any conditions involving chemicals that pose risks to health or safety.
6. Monitoring science chemical inventories and updating the school chemical inventory list when necessary.
7. Making requests to the Science Curriculum Specialist for disposal of unwanted chemicals from the science area. A request for disposal of unwanted chemicals includes the name of the chemical, if known, and the quantity of the chemical. **Requests for disposal of chemicals should be sent to the Science Curriculum Specialist by May 15th of each school year.**
8. Reviewing chemical purchase orders to verify that prohibited chemicals are not ordered.

While the appointment of a Chemical Hygiene Officer is intended to enhance safety for employees, it does not lessen the responsibility of any employee to learn and practice safe procedures for working and teaching in a school science laboratory.

Current Chemical Hygiene Officers

Chemical Hygiene Officers for the 2026-2027 school year are:

School	Chemical Hygiene Officer
Agua Fria High School	Rebecca Yonamine
Canyon View High School	Alexa Garcia
Desert Edge High School	Kelly SoRelle
Goodyear High School	Marcy Cooper
Hilltop School for the Arts	Amanda Cruz
Millennium High School	Rosy Muftikian
Verrado High School	Susan Barnill

Chemical Hygiene Officer appointments are made annually by each site principal. Any changes to these appointments should be communicated to the District Science Curriculum Specialist and the Operations & Safety Department as soon as they occur.

III. Chemical Hygiene Plan — Overview

Purpose

The Agua Fria Union High School District Chemical Hygiene Plan (CHP) establishes district-wide policies and procedures to promote the safe handling, storage, use, and disposal of chemicals in school science laboratories. The plan is designed to protect employees and students, reduce the risk of chemical exposure, and ensure compliance with applicable federal safety regulations and nationally recognized laboratory safety guidance.

Access to the Chemical Hygiene Plan

To ensure employees have access to the information necessary to work safely in science laboratories, each school shall maintain the following:

- The current **District Chemical Hygiene Plan**
- A current **Site Chemical Inventory**
- **Safety Data Sheets (SDS)** for all hazardous chemicals stored or used on campus

These documents shall be readily available in the science department and/or chemical storage area. Electronic copies shall also be maintained in the district's designated document repository (Hub, Operations & Safety SharePoint, or other district-approved platform) and made accessible to science staff, administrators, custodial staff, and maintenance personnel, as appropriate.

The following resources should also be available to all employees:

- [OSHA Laboratory Standard \(29 CFR §1910.1450\)](#)
- [OSHA Hazard Communication Standard \(29 CFR §1910.1200\)](#)
- [CDC/NIOSH School Chemistry Laboratory Safety Guide](#)
- [OSHA Chemical Hazards Safety and Health Topics](#)

Employee exposure and medical records related to occupational chemical exposure shall be maintained by the Human Resources Department in accordance with [OSHA Access to Employee Exposure and Medical Records \(29 CFR §1910.1020\)](#)

Annual Review and Updates

The Chemical Hygiene Plan shall be reviewed annually by the District Science Curriculum Specialist in collaboration with the Operations & Safety Department. Revisions will be made as necessary to reflect updates to federal regulations, district procedures, laboratory operations, and nationally recognized safety best practices.

Following each annual review, the updated Chemical Hygiene Plan shall be distributed to all campuses and replace previous versions.

Compliance Monitoring

Each school shall participate in an annual review of its science laboratories and chemical storage areas to verify compliance with applicable regulations and district expectations. The review will assess compliance with:

- [OSHA Hazard Communication Standard \(29 CFR §1910.1200\)](#)
- [OSHA Laboratory Standard \(29 CFR §1910.1450\)](#)
- [CDC/NIOSH School Chemistry Laboratory Safety Guide](#)
- Agua Fria Union High School District Chemical Hygiene Plan

Annual inspections may include, but are not limited to:

- Chemical storage and segregation
- Chemical inventory and SDS documentation
- Laboratory safety equipment
- Personal protective equipment (PPE)
- Chemical waste management
- Employee training documentation
- Laboratory emergency preparedness

Corrective Actions

Any deficiencies identified during an inspection or compliance review shall be documented and addressed in a timely manner. The Chemical Hygiene Officer, site administration, District Science Curriculum Specialist, and Operations & Safety Department shall collaborate to implement and verify corrective actions.

Inspection reports, findings, and documentation of completed corrective actions shall be maintained by the site's Chemical Hygiene Officer and principal and submitted to the District Science Curriculum Specialist. Records shall be retained in accordance with district recordkeeping requirements and applicable OSHA regulations.

IV. Employee Responsibilities and Safe Laboratory Practices

All employees who work in science laboratories or conduct classroom activities involving chemicals are responsible for maintaining a safe learning and working environment. Before conducting any laboratory activity, employees must be familiar with the requirements outlined in the following district safety documents:

- Science Safety Guidelines for Teachers ([Appendix B](#))
- Agua Fria Union High School District Chemical Hygiene Plan
- Student Science Safety Rules and Procedures Agreement ([Appendix C](#))

Employees are expected to model safe laboratory practices and reinforce the same expectations required of students.

No employee shall conduct a laboratory activity or chemical demonstration unless they are appropriately trained in the applicable science discipline, understand the associated hazards, and can safely implement all required procedures. If there is any uncertainty regarding the safety of an activity, the activity shall not be conducted.

General Safety Responsibilities

Employees are responsible for:

- Minimizing exposure to hazardous chemicals by following established laboratory safety procedures.
- Understanding the hazards, handling requirements, and disposal procedures for all chemicals used, as identified in the applicable Safety Data Sheets (SDS) and laboratory procedures.
- Maintaining an accurate inventory of hazardous chemicals, including quantities on hand, quantities used, and personnel handling particularly hazardous substances when required.
- Consulting the site's Chemical Hygiene Officer whenever questions arise regarding chemical storage, handling, or disposal.
- Properly storing chemicals according to compatibility and district storage requirements.

Personal Protective Equipment (PPE)

Employees shall wear and enforce the use of appropriate personal protective equipment whenever laboratory hazards are present.

Minimum PPE requirements include:

- ANSI Z87.1 chemical splash goggles whenever chemicals, glassware, or heat sources are in use.
- Appropriate gloves, lab coats, aprons, respirators (when required), or other protective equipment based on the hazards identified in the Safety Data Sheet (SDS).
- Use of a chemical fume hood or safety shield when conducting demonstrations involving hazardous chemicals, carcinogens, reproductive toxins, or substances with high acute toxicity. (See [Appendix G](#) – Chemical-Specific Safety Procedures.)

Laboratory Preparation

Before conducting laboratory activities, employees shall:

- Review laboratory procedures and complete a personal safety assessment.
- Perform any new laboratory experiment or demonstration privately before presenting it to students.
- Verify that all required safety equipment is available and operational.
- Confirm the locations and proper operation of emergency equipment, including:

- Eyewash stations
- Emergency safety showers
- Fire extinguishers
- Review emergency procedures, evacuation routes, spill response procedures, waste disposal requirements, and emergency notification procedures.

Chemical Handling

To reduce the risk of exposure and accidents:

- Only authorized employees shall handle concentrated chemicals or prepare chemical dilutions.
- Chemicals shall be transported using secondary containment such as trays or carts with raised edges.
- Employees shall exercise caution whenever chemicals are moved between classrooms or storage areas.
- Hands shall be thoroughly washed with soap and water after handling chemicals, laboratory materials, or biological specimens and before leaving the laboratory.

V. Chemical Storage Rules and Procedures

Chemical Procurement

To ensure laboratory activities are safe, instructionally appropriate, and compliant with district requirements, chemicals shall only be purchased or used when they meet all of the following criteria:

- Support the Arizona Science Standards, Advanced Placement (AP), or International Baccalaureate (IB) curriculum, as applicable.
- Are used in laboratory activities published in reputable instructional resources that include complete safety procedures.
- Are consistent with recommendations in the [CDC/NIOSH School Chemistry Laboratory Safety Guide](#).

Approved Chemical Sources

Chemicals shall be purchased only from approved commercial laboratory suppliers. Only the materials identified in Appendix A – Chemicals Purchased from Local Community Suppliers may be purchased from local retail vendors.

Chemicals shall **never** be accepted as donations or acquired from private individuals, manufacturing companies, government agencies, or other unapproved sources. Teachers are responsible for understanding the hazards, storage requirements, and safe handling procedures for all chemicals used in their laboratories.

Chemical Inventory

Each school shall maintain a current chemical inventory that includes:

- Chemical name
- Quantity
- Storage location(s)
- Associated Safety Data Sheet (SDS)

The inventory shall be maintained in the science department and/or chemical storage area and submitted annually to the District Science Curriculum Specialist. Chemical inventories should be reviewed throughout the school year and updated whenever chemicals are added, relocated, or removed.

Chemical Labeling

All chemical containers, including diluted solutions and teacher-prepared mixtures, shall be clearly labeled with:

- Chemical name
- Concentration (when applicable)
- Date received or prepared
- Hazard information, when appropriate

Unlabeled chemicals shall never be stored or used and must be treated as unknown hazardous materials until properly identified or disposed of through approved procedures.

Chemical Storage Requirements

Chemicals shall be stored in accordance with compatibility, hazard classification, and manufacturer recommendations.

The following storage practices shall be followed:

Storage Facilities

- Store chemicals in a locked, dedicated chemical storage room or approved chemical storage cabinets.
- Only authorized personnel may enter chemical storage areas.
- Students shall not access chemical storage rooms unless directly supervised by a teacher for instructional purposes.
- Chemical storage areas shall remain clean, organized, well ventilated, and free from clutter.

Chemical Compatibility

- Store chemicals by compatible chemical families—not alphabetically.
- Store corrosive materials in approved corrosive storage cabinets.
- Store flammable liquids in approved flammable storage cabinets or approved safety cans.
- Store compressed gas cylinders securely with protective caps installed when not in use.

Safe Storage Practices

To reduce laboratory hazards:

1. Store only the quantity of chemicals reasonably needed for instruction. Whenever possible, maintain no more than a two-year supply.
2. Purchase the smallest practical container sizes to reduce waste and minimize spill hazards.
3. Consider purchasing pre-diluted or ready-to-use chemicals when appropriate.
4. Return chemicals to their designated storage location immediately following laboratory activities.
5. Do not store chemicals on the floor except in approved shipping or transport containers.
6. Avoid storing hazardous chemicals above eye level.
7. Protect chemicals from excessive heat, moisture, and direct sunlight.
8. Clearly label storage cabinets to indicate the hazards of their contents.

Flammable Materials

Flammable liquids shall be handled and stored in accordance with [OSHA](#) and [NFPA](#) requirements.

- Store flammable liquids away from ignition sources.
- Never store flammable materials in standard household refrigerators.
- Only explosion-proof or laboratory-rated refrigerators may be used for flammable materials.
- Metal and glass containers of flammable liquids shall not exceed **1 gallon**.
- Approved safety cans shall not exceed **2 gallons**.

The following chemicals are subject to these storage limitations:

- Acetone
- Amyl Ethyl Ketone
- Cyclohexane
- Ethanol
- Methanol

Compressed Gas Cylinders

Compressed gas cylinders shall:

- Be stored upright and securely restrained.
- Have protective valve caps installed when not in use.
- Be kept away from heat sources and ignition hazards.
- Be protected from impact, tipping, or rolling.

Acetylene and liquefied gas cylinders shall always be stored in the upright position.

Chemical Waste Management

Chemical waste shall be minimized by:

- Purchasing only quantities necessary for instruction.
- Properly labeling waste containers.
- Disposing of waste promptly through district-approved disposal procedures.
- Never accumulating unnecessary quantities of hazardous waste.

Chemical Storage Inspections

Employees conducting chemical inventories or storage inspections shall:

- Wear appropriate PPE, including splash goggles and lab coats.
- Never rearrange hazardous chemicals while working alone.
- Verify proper labeling, storage compatibility, and cabinet organization.
- Inspect laboratory drawers and cabinets after each laboratory activity to ensure chemicals have been returned to their proper storage locations.

VI. Laboratory Chemical Safety Rules and Procedures

Safety Data Sheets (SDS)

A current Safety Data Sheet (SDS) shall be maintained for every hazardous chemical used or stored on campus. SDS documents provide critical information about chemical hazards, safe handling practices, required personal protective equipment (PPE), emergency response procedures, storage requirements, and disposal recommendations.

Employees are expected to review the SDS before using any unfamiliar chemical and ensure they understand the associated hazards and required safety precautions.

Safety Data Sheet (SDS) Sections

Each SDS follows a standardized 16-section format established by [OSHA's Hazard Communication Standard](#).

Section	Description
1. Identification	Product identifier, manufacturer, emergency contact information
2. Hazard Identification	Hazard classifications, signal words, pictograms, precautionary statements
3. Composition / Information on Ingredients	Chemical ingredients and concentrations
4. First Aid Measures	Recommended treatment following exposure
5. Fire-Fighting Measures	Fire hazards and extinguishing recommendations
6. Accidental Release Measures	Spill response and cleanup procedures
7. Handling and Storage	Safe handling and storage requirements
8. Exposure Controls / PPE	Exposure limits and required protective equipment
9–11	Physical properties, stability, toxicological information
12–16	Ecological, disposal, transport, regulatory, and additional information

Laboratory Safety Requirements

The following practices shall be followed during all laboratory activities involving hazardous materials.

Laboratory Activities

Employees shall:

- Conduct only laboratory activities that have been approved by the district and are supported by established laboratory procedures.

- Obtain approval from the Department Chair, Chemical Hygiene Officer, and Site Principal before conducting any modified or non-standard laboratory activity.
- Notify the District Operations & Safety Department prior to conducting any approved activity that deviates from standard laboratory procedures.
- Inspect all laboratory safety equipment prior to use and immediately remove defective equipment from service.

Emergency Preparedness

Each laboratory shall maintain:

- Clearly identified emergency contact information.
- Reliable access to a telephone or emergency communication device.
- Clearly marked evacuation routes.
- Accessible spill response materials.
- Appropriate fire extinguishers and emergency equipment.

Employees shall:

- Keep aisles, exits, and emergency equipment unobstructed.
- Immediately report all spills, fires, injuries, or hazardous conditions.
- Evacuate the laboratory and activate emergency procedures whenever conditions present an immediate danger.

Fire Extinguishers

Science laboratories shall be equipped with:

- ABC Fire Extinguishers for general laboratory use.
- Class D Fire Extinguishers (or dry sand) whenever combustible metals are present.

Fire extinguishers shall be inspected according to district and fire code requirements, with inspection records maintained.

Chemical Spill Response

Employees shall:

- Clean up minor spills immediately using approved spill response procedures.
- Utilize appropriate spill kits and neutralizing materials.
- Report significant spills to administration and the Operations & Safety Department.
- Never attempt to clean spills beyond their level of training.

Mercury spills require specialized hazardous materials response.

Mercury-containing devices—including thermometers and barometers—are prohibited in district science laboratories and shall be replaced with digital or alcohol-based alternatives.

Chemical Waste Disposal

Chemical waste shall be disposed of according to applicable federal, state, and local regulations.

The Chemical Hygiene Officer shall coordinate hazardous waste collection and disposal with the District Operations & Safety Department and District Science Curriculum Specialist.

General expectations include:

- Unknown chemicals shall be treated as hazardous waste.
- Hazardous waste containers shall be properly labeled.
- Waste accumulation shall be minimized.
- Disposal requests shall be submitted annually before the district-established deadline

Employees shall always follow disposal recommendations contained within the chemical's **Safety Data Sheet (SDS)**.

The SY 26/27 Disposal Deadline shall be: May 15th, 2027

Personal Protective Equipment (PPE)

Appropriate PPE shall be worn whenever laboratory hazards are present.

Minimum requirements include:

- ANSI Z87.1 chemical splash goggles
- Appropriate chemical-resistant gloves
- Laboratory coat or chemical-resistant apron when handling corrosive materials
- Face shield when handling concentrated acids, bases, or other splash hazards

Additional PPE shall be selected based upon the chemical hazard assessment and Safety Data Sheet recommendations.

Safe Laboratory Practices

Employees shall:

- Never pipette by mouth.
- Never directly smell chemicals; always use the wafting technique.
- Wash hands immediately after handling chemicals and before leaving the laboratory.
- Prohibit food, beverages, cosmetics, and personal care products in laboratory work areas.
- Read all chemical labels before use.
- Never store unlabeled chemicals.
- Handle toxic, corrosive, or highly volatile chemicals inside an approved chemical fume hood.
- Keep ignition sources away from flammable chemicals.
- Inspect acid storage cabinet hardware at least once each semester.
- Use a safety shield when igniting flammable solids.
- Exercise caution when handling fine powders that may present inhalation or explosion hazards.
- Avoid wearing contact lenses when working with hazardous chemicals unless appropriate eye protection is worn.

Glassware and Equipment

Employees shall:

- Remove chipped, cracked, or etched glassware from service.
- Inspect laboratory equipment prior to use.
- Maintain clean work surfaces and laboratory work areas.

Incident Reporting

All injuries, chemical exposures, accidents, and near misses shall be reported immediately.

Employees shall:

- Notify the school nurse and site administrator as appropriate.
- Complete the district incident report before leaving campus whenever practical.
- Submit required documentation to the Operations & Safety Department.

Emergency Planning

Teachers shall develop, communicate, and periodically practice emergency procedures with students, including:

- Fire evacuation
- Chemical spill response
- Power outage procedures
- Shelter-in-place procedures, when applicable

Emergency procedures should be reviewed at the beginning of each course and reinforced prior to laboratory activities.

VII. Facilities and Safety Equipment for Science Laboratories

Science laboratories shall be equipped and maintained to provide a safe environment for employees and students whenever chemicals, open flames, heated equipment, or hazardous fumes are present. Required safety equipment shall be readily accessible, maintained in good working order, and inspected on a regular basis.

Required Safety Equipment

The following equipment shall be available, operational, and readily accessible where applicable:

Fire Protection

- Fire blanket(s) in laboratories where open flames are used.
- ABC-rated fire extinguishers located in each laboratory and chemical storage area.
- Fire extinguishers shall be inspected and maintained in accordance with district procedures and applicable fire code requirements.

Personal Protective Equipment

The laboratory shall maintain an adequate supply of:

- ANSI Z87.1 compliant chemical splash goggles
- Face shields for demonstrations involving splash hazards or highly corrosive chemicals
- Additional PPE appropriate to laboratory activities

Emergency Equipment

The following emergency equipment shall be available and functional:

- Eyewash station(s), flushed and documented at least monthly
- Emergency safety shower(s) in high school chemistry laboratories
- Running water for handwashing in laboratories where chemicals or preserved specimens are used

Eyewash stations, emergency showers, and related equipment shall be inspected and maintained according to manufacturer recommendations and applicable safety standards.

Ventilation

Science laboratories shall provide adequate ventilation appropriate for laboratory activities.

Where hazardous fumes, vapors, or airborne contaminants may be generated:

- Laboratory ventilation systems shall be operational.
- Exhaust air shall be discharged outdoors or otherwise treated in accordance with applicable codes.
- Chemical fume hoods shall be maintained and operated according to the manufacturer's specifications.
- Fume hood face velocity should generally be maintained between **60–100 linear feet per minute (fpm)** or as recommended by the manufacturer.

Laboratory ventilation systems shall not be used beyond their intended design or operating limits.

Demonstration Safety

When demonstrations involve elevated risk, laboratories shall provide:

- Chemical safety shields
- Functional chemical fume hoods when required by the hazard assessment

The use of a safety shield or fume hood does not replace the requirement for appropriate personal protective equipment.

Laboratory Suitability

Laboratory activities involving hazardous chemicals, open flames, heating of glassware, or the generation of hazardous vapors shall only be conducted in classrooms that are properly equipped for those activities.

Activities shall not be conducted in classrooms lacking the required safety equipment, ventilation, or emergency response equipment.

Inspection and Maintenance

The Chemical Hygiene Officer (CHO) shall conduct inspections of laboratory safety equipment at the beginning of each semester and periodically throughout the school year as needed to ensure all safety equipment remains operational and compliant with district requirements.

Inspections shall be completed using the **Agua Fria Union High School District Laboratory Safety Inspection Checklist** (Appendix F) and, when inspecting chemical storage areas, the **Chemical Storage Inspection Checklist** (Appendix E).

Inspections should verify the condition and functionality of:

- Eyewash stations
- Safety showers
- Fire extinguishers
- Fire blankets
- Fume hoods
- Safety shields
- Splash goggles
- Other laboratory safety equipment

Any deficiencies shall be documented and corrected promptly.

Inspection records and documentation of corrective actions shall be maintained by the Chemical Hygiene Officer and provided to the site principal and the District Science Curriculum Specialist.

VIII. Employee Training

Annual Chemical Hygiene Training

To ensure a safe laboratory environment and compliance with applicable regulations, all employees who work in science laboratories, chemical storage areas, or regularly handle hazardous chemicals shall complete annual Chemical Hygiene Plan (CHP) training.

The site's Chemical Hygiene Officer (CHO) is responsible for coordinating and providing this training at the beginning of each school year.

Employees hired after the annual training has occurred shall complete Chemical Hygiene Plan training before independently working in a science laboratory or chemical storage area.

All employees shall receive access to the current Agua Fria Union High School District Chemical Hygiene Plan, either electronically or in print.

Required Training Topics

Annual Chemical Hygiene Plan training shall include, at a minimum:

Chemical Hygiene Plan Overview

- Review of the District Chemical Hygiene Plan
- Employee roles and responsibilities
- Laboratory safety expectations
- Updates or revisions made since the previous school year

Hazard Communication

- Location and use of the site's Chemical Inventory
- Location and use of Safety Data Sheets (SDS)
- Understanding OSHA hazard communication requirements
- Reading and interpreting Safety Data Sheets (SDS)
- Chemical labeling requirements

Laboratory Safety Procedures

- Proper use of personal protective equipment (PPE)
- Chemical storage requirements
- Chemical procurement procedures
- Chemical waste management and disposal procedures
- Review of prohibited or restricted chemicals (see [Appendix D](#))

Emergency Procedures

- Reporting laboratory accidents and near misses
- Reporting unsafe conditions
- Medical response procedures following chemical exposure
- Fire response procedures
- Chemical spill response
- Laboratory evacuation procedures

District Procedures

- Use of the District Incident Report form
- Procedures for requesting hazardous waste disposal
- Procedures for requesting approval to acquire restricted chemicals
- Review of required laboratory inspection forms and documentation

Training Documentation

The Chemical Hygiene Officer shall maintain documentation of all Chemical Hygiene Plan training.

Training records shall include:

- Employee name
- Date of training
- Training topic(s)
- Instructor
- Employee signature or electronic acknowledgment

Training records shall be retained according to district record retention requirements and shall be available upon request during site or district safety reviews.

Ongoing Safety Training

Chemical safety is an ongoing responsibility.

Science departments should incorporate periodic safety reminders throughout the school year, including updates related to:

- New laboratory activities
- New chemicals or equipment
- Changes to regulations or district procedures
- Lessons learned from incidents or near misses
- Seasonal laboratory safety considerations

Additional training shall be provided whenever new hazards, equipment, or procedures are introduced.

Required Resources

Employees shall know how to access and use the following resources:

- Agua Fria Union High School District Chemical Hygiene Plan
- Site Chemical Inventory
- Safety Data Sheets (SDS)
- District Laboratory Safety Inspection Checklist ([Appendix F](#))
- District Chemical Storage Inspection Checklist ([Appendix E](#))
- District Incident Report Form
- District Chemical Disposal Request Process

Appendix A: Chemicals Approved for Local Purchase

To ensure consistency, quality, and safety, chemicals used in Agua Fria Union High School District science laboratories should be purchased from approved commercial laboratory suppliers whenever possible.

The products listed in this appendix have been approved for purchase from local community retailers (e.g., grocery stores, pharmacies, hardware stores, and general merchandise retailers) because they present a low risk when used as intended for instructional purposes.

All chemicals **not listed in this appendix** shall be purchased through an approved commercial laboratory supplier.

Approved Chemicals

The following products may be purchased from local community suppliers:

Household Products		Laboratory Materials
Antacids	Liquid Bluing	Aluminum
Ammonia (household)	Nail Polish Remover	Copper
Aspirin	Pancake Syrup	Iron
Baking Powder	Plastic Wrap	Steel
Baking Soda	Rock Salt	Zinc
Bleach	Rubbing Alcohol (Isopropyl Alcohol)	Chalk (for laboratory activities)
Corn Starch	Salt (Sodium Chloride)	
Corn Syrup	Shampoo / Conditioner	
Dish Detergent	Sugar	
Drano®	Tea Bags	
Epsom Salt	Tie-Dye Dyes	
Flour	Tylenol® (Acetaminophen)	
Food Coloring	Vegetable Oil	
Gelatin	Vinegar	
Honey	Windex®	
Hydrogen Peroxide (3% or less)	Woolite®	

Note: Commercial brand names (e.g., Drano®, Tylenol®, Windex®, Woolite®) are included for reference. Equivalent products with the same active ingredients may also be used.

Requesting Approval for Additional Chemicals

If an instructional activity requires a chemical not listed in this appendix that is reasonably available from a local community supplier, the site's Chemical Hygiene Officer (CHO) may grant **temporary approval** for its purchase during the current school year.

The following process shall be followed:

1. The Chemical Hygiene Officer shall review the proposed chemical to ensure it is appropriate for instructional use and does not present an unnecessary hazard.
2. The Chemical Hygiene Officer shall notify the District Science Curriculum Specialist and the Operations & Safety Department of the temporary approval.
3. The temporary approval shall be documented and communicated to other district Chemical Hygiene Officers.

Annual Review

At the beginning of each school year, the District Chemical Hygiene Officers shall review all chemicals that received temporary approval during the previous school year.

Based on instructional need, safety considerations, and current best practices, the committee may recommend adding approved products to this appendix or removing products that are no longer appropriate for local purchase.

Appendix B:

Science Safety Guidelines for Teachers

Science Safety Guidelines for Teachers

These guidelines summarize the minimum safety expectations for all Agua Fria Union High School District employees who conduct science instruction. All science teachers are responsible for maintaining a safe learning environment by following the District Chemical Hygiene Plan, applicable district policies, and all federal and state laboratory safety regulations.

General Laboratory Safety

Teachers are responsible for creating and maintaining a safe laboratory environment for all students.

Teachers shall:

- Understand the hazards associated with every laboratory activity before instruction.
- Conduct only laboratory activities for which they have received appropriate training.
- Review new laboratory activities prior to classroom implementation.
- Maintain active supervision of students at all times during laboratory activities.
- Never leave students unattended while chemicals, laboratory equipment, or open flames are in use.
- Select laboratory activities that are appropriate for the maturity, experience, and behavior of students.
- Ensure students receive laboratory safety instruction before participating in laboratory activities.
- Require all students to complete and sign the **Student Science Safety Rules and Procedures Agreement (Appendix C)** prior to participating in laboratory investigations.
- Review emergency procedures with students at the beginning of the course and before laboratory activities as needed.

Chemical Safety

Teachers who use chemicals in instruction shall:

- Purchase chemicals only through approved district procedures.
- Use only chemicals that support the district curriculum.
- Store chemicals according to district storage requirements.
- Ensure chemicals remain secured and inaccessible to students unless directly supervised.
- Review the applicable **Safety Data Sheet (SDS)** before using unfamiliar chemicals.
- Follow all district procedures for chemical handling, storage, and disposal.

Personal Protective Equipment (PPE)

Teachers shall:

- Wear and enforce the use of appropriate PPE during laboratory activities.
- Require ANSI Z87.1 chemical splash goggles whenever chemicals, glassware, heat, or flying particles present a hazard.
- Use safety shields during demonstrations involving elevated risk.
- Ensure all required safety equipment is available before beginning laboratory activities.

Laboratory Equipment

Teachers shall:

- Use only equipment with which they are familiar and properly trained.
- Instruct students on the proper use of laboratory equipment before use.
- Inspect equipment, electrical cords, and glassware prior to each laboratory activity.
- Remove damaged or defective equipment from service immediately.
- Prohibit mercury-containing thermometers, barometers, or other mercury-containing devices.
- Use caution when operating alcohol burners or other heat sources and never refill burners while they are in use.

Biological Safety

Teachers shall:

- Follow district procedures for biological investigations.
- Never conduct laboratory activities involving human blood or body fluids.
- Use commercially prepared specimens or blood substitutes when appropriate.
- Culture microorganisms only when appropriate training and safety procedures are in place.
- Obtain administrative approval before housing animals in the classroom.
- Ensure humane treatment of all classroom animals.
- Require thorough handwashing after handling chemicals, plants, animals, or biological materials.

Field Investigation Safety

Science field investigations shall:

- Be conducted in accordance with district field trip procedures.
- Support district curriculum and instructional objectives.
- Include an assessment of potential hazards before the activity.
- Provide adequate adult supervision.
- Minimize environmental impact during specimen collection.
- Prohibit collection of endangered species or removal of specimens from protected areas without authorization.
- Require appropriate PPE whenever hazards are present.
- Prohibit eating unknown plants or drinking untreated water from natural sources.
- Use plastic or other non-breakable containers whenever practical.

Teacher Safety Responsibilities

Before each laboratory activity, teachers should verify that:

- Students have received appropriate safety instruction.
- Required PPE is available and worn correctly.
- Emergency equipment is accessible and operational.
- Chemicals are properly labeled and stored.
- Laboratory equipment has been inspected.
- Safety Data Sheets (SDS) are available.
- Emergency procedures have been reviewed.
- Students understand laboratory expectations.

Appendix C:

Student Science Safety Rules and Procedures Agreement

To ensure that science experiments are safe and positive learning experiences, students and their parents/guardians must read, discuss, and sign this Science Safety Rules and Procedures Agreement.

No student will be permitted to participate in laboratory work until this agreement is signed by both the student and a parent/guardian and returned to the teacher.

Signed agreements must remain on file with each science teacher and be available for inspection at any time by the Department Chair, Chemical Hygiene Officer, site administration, or District officials.

Science Safety Rules

1. Act in a responsible manner at all times. Misconduct that endangers any student will not be tolerated.
2. Never work without adult supervision. Do not handle materials until instructed to do so.
3. Perform only the experiments as directed. Do not engage in unauthorized procedures. Follow all instructions and read all procedures carefully. If you do not understand something, ask the teacher.
4. Eating or drinking in the laboratory or experimental work area is strictly prohibited.
5. Wear appropriate protective equipment. This includes lab coats or aprons and ANSI-approved eye protection when required. Avoid touching your face, eyes, or mouth while working with chemicals or preserved specimens.
6. Know the location and operation of all emergency equipment, including eyewash stations, safety showers, fire extinguishers, and fire blankets. Report all accidents, injuries, close calls, or unsafe conditions to the teacher immediately.
7. Shoes must be worn at all times in the lab. Avoid loose clothing and tie back long hair to keep it away from flames and chemicals.
8. Never taste a chemical. Never pipette by mouth—always use a pipette bulb.
9. Smell chemicals only when instructed, and do so by gently wafting the vapor toward your nose.
10. Carry sharp instruments with the tip or edge pointing downward. Never try to catch falling sharp objects.
11. Use caution when heating substances. Keep hands and face away from the opening of test tubes or beakers being heated. Never leave a heat source unattended. Turn off burners or hot plates when not in use.
12. Do not enter science prep rooms or chemical storage areas without teacher supervision.
13. Never remove chemicals, supplies, or equipment from the lab without the teacher's knowledge and permission.
14. At the end of each lab session, clean your work area, return all equipment and reagents, and wash your hands. Report any broken or damaged glassware or equipment to your teacher.
15. All personal belongings—including backpacks and bags—must be stored in a locked classroom and are not allowed in the lab.

Your science teacher may add additional safety instructions on the reverse of this form.

Student & Parent Acknowledgment

I, _____, have read, understand, and agree to follow the above science safety rules and procedures. I also agree to follow any additional instructions, written or verbal, provided by my science teacher or another adult supervisor.

Student Signature: _____ Date: _____
 Parent/Guardian Signature: _____ Date: _____

Medical Information:

Please list any allergies, medical conditions or special circumstances that your teacher should be aware of:

Appendix D: Science Chemical Review List

This appendix identifies chemicals that are either:

- **Prohibited** from purchase, use, or storage in district science facilities; or
- Permitted only in **small quantities and with appropriate safety precautions**.

This list shall be reviewed when completing chemical inventories, purchasing chemicals, planning laboratory activities, and preparing chemicals for disposal.

Requirements for Chemical Purchase and Use

A chemical may be purchased or used for a science laboratory activity only when it:

1. Supports the Arizona Science Standards or an approved Advanced Placement or International Baccalaureate science curriculum.
2. It is used as part of an established laboratory procedure that provides complete instructions and safety precautions.
3. Has been reviewed for potential hazards, appropriate storage, required personal protective equipment, and proper disposal.
4. Is purchased from an approved commercial laboratory supplier.

Chemicals shall not be accepted as donations or acquired from private individuals, businesses, manufacturers, government agencies, or other unapproved sources.

Teachers are responsible for reviewing the hazards associated with each chemical and laboratory procedure before use. A current **Safety Data Sheet (SDS)** must be reviewed and readily accessible for every hazardous chemical stored or used on campus.

Quantity Limits

Chemical quantities shall be limited to the minimum amount reasonably needed for instruction. Except where a more restrictive limit is identified, campuses should not maintain more than a two-academic-year supply.

Chemicals restricted to demonstrations or specialized courses shall be purchased only in the quantity specifically authorized by this appendix.

Hazard Codes

The following codes identify the primary hazards associated with chemicals in this appendix:

Code	Hazard
C	Known or suspected carcinogen
T	Moderately to extremely toxic

R	Highly reactive and/or corrosive
F	Flammable
E	Potentially explosive

Note: A chemical may have more than one hazard designation.

How to Use This List

Chemicals are organized into two categories:

Prohibited Chemicals

Chemicals identified as **Prohibited** shall not be purchased, used, or stored in district science facilities. Any prohibited chemical discovered during an inventory shall remain secured and shall be reported to the site Chemical Hygiene Officer for district-approved disposal.

Small Quantities Only

Chemicals identified as **Small Quantities Only** may be maintained only when there is a documented instructional need and the chemical can be safely used, stored, and disposed of in accordance with its SDS and the District Chemical Hygiene Plan.

The presence of a chemical in the Small Quantities Only category does not automatically authorize its use. Teachers must consider the concentration, quantity, grade level, laboratory facilities, ventilation, available PPE, and hazards of the specific procedure.

Chemical Review List

Chemical	Status	Hazard(s)	Restrictions or Notes
Acetamide	Small quantities only	C	—
Acetic acid	Small quantities only	R	Concentration-specific precautions required
Acetic acid, glacial	Small quantities only	T, F, R	—
Acetic anhydride	Prohibited	F, R, T	—
Acetone	Small quantities only	F, T	—
Acetyl chloride	Small quantities only	F	—
Acrylonitrile	Small quantities only	C	Consider district review due to carcinogenic hazard
Aluminum chloride, anhydrous	Prohibited	R, T	—
Ammonium bichromate	Prohibited	T, E, F	—
Ammonium chromate	Small quantities only	T	—
Ammonium dichromate	Small quantities only	T, E, F	—
Ammonium hydroxide, 14 M	Small quantities only	T	—
Ammonium hydroxide, 6 M	Small quantities only	T	—
Ammonium nitrate, crystals	Small quantities only	T, E	—
Aniline	Prohibited	T, C	—

Arsenic and listed arsenic compounds	Prohibited	T and/or C	—
Asbestos	Prohibited	C	—
Barium chloride, crystals	Prohibited	T	—
Barium peroxide	Small quantities only	T, F	High school demonstration supply only
Benzene	Prohibited	C, T, F	—
Benzidine	Prohibited	T	—
Benzoyl peroxide	Prohibited	T, E, R	—
Bromine	Prohibited	T, F	—
Cadmium	Prohibited	C, T	Cadmium compounds require careful review
Calcium carbide	Prohibited	F	—
Calcium cyanide	Prohibited	T	—
Carbon disulfide	Prohibited	F, E	—
Carbon tetrachloride	Prohibited	T	—
Chloroform	Prohibited	C, T	—
Chromium powder	Prohibited	C	—
Chromium trioxide	Prohibited	C, T	Also identified as chromic acid
Colchicine	Prohibited	C, T	—
Cyclohexane	Small quantities only	F, T	High school only
Formaldehyde, 37% solution	Prohibited	T, C	—
Formalin, 10% formaldehyde	Small quantities only	T	Use alternatives when practical
Gasoline	Prohibited	F, E	—
Gunpowder	Prohibited	E	—
Hydrofluoric acid	Prohibited	T	—
Hydrogen peroxide, over 6%	Small quantities only	T, R	High school only
Iodine crystals	Small quantities only	T, R	High school demonstration supply only
Lead acetate	Prohibited	T, C	—
Lead arsenate	Prohibited	C, T	—
Lithium	Small quantities only	F, R	Maximum one-year demonstration supply
Lithium nitrate crystals	Small quantities only	E, R	Maximum one-year demonstration supply
Mercury and mercury compounds	Prohibited	T	Includes mercury-containing devices
Perchloric acid	Prohibited	R, E	—
Petroleum ether	Prohibited	F	—
Phenol, crystals or 88% solution	Prohibited	C, T	—
Phosphorus, red or white	Prohibited	F	—

Picric acid	Prohibited	Hazard not stated in original list	—
Potassium metal	Small quantities only	E, R	Maximum one-year demonstration supply
Potassium cyanide	Prohibited	T	—
Potassium chlorate	Prohibited	T, E	—
Silver cyanide	Prohibited	T	—
Sodium metal	Small quantities only	F, R	Maximum one-year demonstration supply
Sodium arsenate	Prohibited	T, C	—
Sodium arsenite	Prohibited	T, C	—
Sodium azide	Prohibited	T, E	—
Sodium cyanide	Prohibited	T	—
Sodium peroxide	Prohibited	E	—
Sulfuric acid, fuming	Prohibited	T, R	—
Toluene	Prohibited	T, F	—

Before using a chemical classified as Small Quantities Only, the teacher and Chemical Hygiene Officer shall review:

- The current SDS
- Proposed concentration and quantity
- Instructional purpose
- Student grade level and maturity
- Required PPE
- Ventilation or fume-hood requirements
- Chemical compatibility and storage
- Spill-response procedures
- Waste-disposal requirements
- Availability of a safer substitute

The Chemical Hygiene Officer may require additional district approval before the chemical is purchased or used.

Inventory Review and Disposal

The Chemical Hygiene Officer shall compare this appendix against the site chemical inventory at least annually.

When a prohibited, deteriorated, expired, unlabeled, or unnecessary chemical is identified:

1. Do not open, move, mix, or dispose of it unless authorized.
2. Secure the container in its existing location when it is safe to do so.
3. Record the chemical name, concentration, quantity, container condition, and storage location.
4. Notify the District Operations & Safety Department.
5. Arrange disposal through the district's approved hazardous-waste process.

Appendix E:

Chemical Storage Inspection Checklist

This checklist outlines the required conditions for a chemical storage area to comply with the District's Chemical Hygiene Plan.

Completed checklists, along with documentation of any corrective actions taken, must be retained by both the Chemical Hygiene Officer and the Science Department Chair. A copy must also be submitted to the Science Curriculum Specialist.

School: ☐ AF ☐ CV ☐ DE ☐ GHS ☐ HSA ☐ MHS ☐ VHS	Storage Location:
Inspection Conducted By:	Date of Inspection:
CHO or Admin Signature:	Date Signed:

Instructions:

Mark each item with:

- S = Satisfactory
- C = Corrective action needed

Storage Area Conditions

- All chemicals are clearly labeled with appropriate information. _____
- Chemicals are stored on secure shelving. _____
- Chemicals are spaced to allow safe handling and removal. _____
- Stored quantities of hazardous chemicals do not exceed a two-year supply. _____
- Only chemicals required for science instruction are stored. _____
- Labeled cabinets are used for storage of flammables and contact hazards. _____
- Storage area is free of defective or damaged containers. _____
- Hazardous chemicals are not stored above eye level. _____
- Chemical storage area is secured with locked doors. _____
- A fire extinguisher is present in the chemical storage area. _____
- Spill control and cleanup materials are readily available. _____
- Floor area is clear of clutter and allows easy exit from the room. _____
- Chemical safety equipment is functional and not expired _____
 - Date of last Chemical Safety Hood Test: _____
 - Date of Last Chemical Safety Hood Filter Replacement: _____
 - Date of last Eye Wash Test: _____
 - Date of last Safety Shower Test: _____

Prohibited Substances Check

Confirm that none of the following chemicals are stored on-site:

1. Gasoline _____
2. Mercury or mercury compounds _____
3. Benzoyl peroxide _____
4. Carbon disulfide _____
5. Ether _____
6. Picric acid _____
7. Perchloric acid _____
8. Arsenic (powder, pentoxide, trichloride, or trioxide) _____
9. Asbestos _____
10. Benzene or benzidine _____
11. Chromium (powder or chromium (VI) oxide) _____

12. Lead arsenate _____

13. Sodium arsenate or sodium arsenite _____

Additional Requirements

- SDS sheets are available and stored in a clearly marked location _____
- Metal and glass containers of flammable liquids are limited to one gallon. _____
- Glass containers of the following chemicals do not exceed one gallon:
 - Acetone, Amyl Alcohol, Methyl Ethyl Ketone, Cyclohexane, Ethanol, Methanol _____
- Chemical storage areas and connected laboratories have adequate ventilation. _____

Remarks:

Appendix F:

Laboratory Safety Inspection Checklist

School: _____ Laboratory/Room: _____
 Inspected by: _____ Date: _____

Use this checklist at the beginning of each semester and during periodic safety reviews. Mark each item S (Satisfactory), C (Corrective Action Needed), or N/A.

Status	Inspection Area	Verification Criteria
_____	Emergency equipment	Eyewash stations and safety showers are accessible, functional, and inspection records are current.
_____	Fire protection	Required fire extinguishers and fire blankets are present, accessible, and inspected.
_____	Ventilation	Laboratory ventilation and fume hoods are operational and appropriate for planned activities.
_____	Personal protective equipment	Adequate ANSI Z87.1 splash goggles and other required PPE are available, maintained, and sanitized.
_____	Chemical documentation	The current Chemical Hygiene Plan, chemical inventory, and SDS records are readily accessible.
_____	Chemical storage	Chemicals are labeled, secured, segregated by compatibility, and stored below eye level when hazardous.
_____	Waste management	Chemical-waste containers are compatible, closed, labeled, and managed through district-approved procedures.
_____	Emergency readiness	Emergency contacts, evacuation routes, spill materials, and incident-reporting procedures are clearly available.
_____	Laboratory condition	Aisles, exits, work surfaces, and access to emergency equipment are clear and unobstructed.
_____	Equipment condition	Glassware, electrical equipment, safety shields, and other laboratory equipment are inspected and serviceable.
_____	Training records	Annual CHP training and any required supplemental training are documented.
_____	Corrective actions	Identified deficiencies are documented, assigned, and tracked through completion.

Corrective Actions / Responsible Person / Due Date:

Appendix G:

Chemical-Specific Safety Procedures

This appendix establishes additional precautions for chemicals that present heightened health or physical hazards. These requirements apply in addition to all other provisions of the District Chemical Hygiene Plan, the chemical's Safety Data Sheet (SDS), and applicable laboratory procedures.

Whenever possible, employees should use a safer alternative or the lowest practical concentration and quantity. Chemicals covered by this appendix shall not be used unless the employee understands the hazards, required controls, emergency procedures, and disposal requirements.

Reproductive Toxins

Reproductive toxins are substances that may adversely affect reproductive health, fertility, pregnancy, or fetal development.

When working with a known or suspected reproductive toxin, employees shall:

- Handle the chemical in an approved chemical fume hood or other appropriate containment device.
- Wear suitable chemical-resistant gloves and other protective clothing necessary to prevent skin contact.
- Review the chemical's SDS before use and follow all recommended exposure controls.
- Clearly label all containers with the chemical identity and applicable hazard warnings.
- Store the chemical in a well-ventilated, restricted-access area.
- Use chemically compatible, unbreakable secondary containment whenever practical.
- Minimize the quantity used and the length of time the container remains open.
- Immediately report all spills, suspected exposures, or other incidents to the Chemical Hygiene Officer and site administrator.

Pregnant employees, employees who are planning a pregnancy, or employees with concerns regarding reproductive hazards may consult Human Resources regarding available occupational health resources. Employees are not required to disclose personal medical information to coworkers or students.

Chemicals with High Acute Toxicity

Chemicals with high acute toxicity may cause serious illness, injury, or death following a single exposure or short-term exposure.

The following supplemental precautions shall be followed:

Restricted Access

- Use and store these chemicals only in designated, restricted-access areas.
- Clearly post appropriate hazard warnings and access restrictions.
- Limit access to employees who are trained and authorized to work with the chemical.
- Students shall not handle chemicals with high acute toxicity unless specifically authorized by district procedures and directly supervised.

Engineering Controls

- Conduct procedures that may generate aerosols, dusts, gases, or vapors inside an approved chemical fume hood or other appropriate containment device.

- The fume hood shall operate within the manufacturer's recommended range. A minimum face velocity of 60 linear feet per minute may be required, depending on the hood and procedure.
- Verify that required ventilation and containment equipment is operational before beginning work.

Personal Protective Equipment

Employees shall:

- Wear chemical-resistant gloves selected for the specific substance.
- Wear long sleeves, a laboratory coat, or other protective clothing necessary to prevent skin contact.
- Wear appropriate eye and face protection.
- Remove contaminated PPE before leaving the designated work area.
- Wash hands thoroughly with soap and water after handling the chemical.

Inventory and Use Records

The Chemical Hygiene Officer shall ensure that records are maintained for particularly hazardous substances, including:

- Chemical name
- Quantity on hand
- Quantity used
- Date of use
- Name of the employee handling the substance
- Remaining quantity, when applicable

Working Alone

Employees shall not work alone when handling a highly toxic chemical or a chemical of unknown toxicity. At least one additional trained adult shall be present or immediately available to assist in an emergency.

Spill Preparation and Secondary Containment

- Store breakable containers in chemically resistant trays or other suitable secondary containment.
- Use removable, absorbent, plastic-backed bench paper when appropriate.
- Prepare spill-response materials before beginning the procedure.
- Do not attempt to clean a spill beyond the employee's training or available protective equipment.

Major Spills

If a major spill occurs outside of an approved containment device:

1. Stop work immediately.
2. Evacuate the affected area.
3. Prevent others from entering.
4. Activate the site's emergency response procedures.
5. Notify site administration, the Chemical Hygiene Officer, and the District Operations & Safety Department.
6. Call emergency services when the spill presents an immediate danger to health, safety, or the environment.

Cleanup shall be completed only by trained and authorized personnel wearing appropriate protective equipment.

Contaminated Materials and Waste

- Place contaminated waste in closed, compatible, clearly labeled containers.
- Use secondary containment for liquid waste.
- Do not place contaminated clothing, shoes, glassware, absorbent materials, or chemical waste in ordinary trash.
- Follow the SDS and district hazardous-waste procedures for decontamination and disposal.
- Clothing or footwear that cannot be safely decontaminated shall be managed through the district-approved hazardous-waste process.

Select Carcinogens

Select carcinogens are chemicals known or reasonably anticipated to cause cancer. These substances require additional controls beyond standard laboratory practices.

Prior Review and Approval

Before using a select carcinogen, the employee shall prepare a written use and disposal plan that addresses:

- Instructional purpose
- Quantity and concentration
- Safer alternatives considered
- Designated work area
- Required engineering controls
- Required PPE
- Decontamination procedures
- Spill-response procedures
- Waste-disposal method

The plan shall be reviewed and approved by the Chemical Hygiene Officer and other district personnel required by the Chemical Hygiene Plan before the chemical is acquired or used.

Designated Area

Work involving select carcinogens shall be conducted only in a designated area, such as:

- A restricted-access chemical fume hood
- A properly functioning glove box
- A clearly identified portion of a laboratory approved for particularly hazardous substances

The designated area shall be marked with appropriate hazard and restricted-access signage. All personnel with access shall be informed of the chemical being used and the precautions required.

Labeling and Storage

- Label every container with the chemical identity and applicable hazard warnings.
- Store containers in ventilated, restricted-access areas when required by the SDS.
- Use compatible, chemically resistant secondary containment.
- Avoid storing select carcinogens in breakable containers whenever a safer alternative is available.
- Maintain only the minimum quantity necessary for the approved procedure.

Safe Work Practices

Employees shall:

- Perform transfers and manipulations inside the designated containment area.
- Avoid creating dusts, aerosols, or vapors.
- Use wet-cleaning methods or a HEPA-filtered vacuum approved for hazardous materials rather than dry sweeping contaminated powders.
- Inspect glove boxes and other containment devices before each use.
- Ensure exhaust gases are properly trapped, filtered, or directed into an approved exhaust system.
- Decontaminate glassware and equipment inside the designated area before removal.
- Decontaminate the work area before returning it to general use.
- Remove protective clothing before leaving the designated area.
- Wash hands, forearms, face, and any other potentially exposed skin after completing the work.

Medical Consultation

Employees who experience a suspected exposure shall receive prompt medical evaluation in accordance with district procedures.

When an employee routinely works with toxicologically significant quantities of a select carcinogen, the District may consult an occupational health professional regarding whether additional medical surveillance is appropriate.

Waste Management

- Collect contaminated waste, including rinsates and wash solutions, in compatible, labeled hazardous-waste containers.
- Transfer waste from the designated area using secondary containment.
- Do not dispose of carcinogenic materials through sinks, ordinary trash, or other unauthorized methods.
- Coordinate disposal with the Chemical Hygiene Officer and District Operations & Safety Department.

Flammable Chemicals

Flammable liquids, solids, gases, and vapors may ignite when exposed to heat, sparks, static electricity, or open flame.

Employees shall follow these precautions:

Heating

- Never heat a flammable liquid with an open flame.
- Do not use a standard hot plate when the equipment could create an ignition source.
- Use an approved heating mantle, steam bath, water bath, or other appropriate non-sparking heating method.
- Verify that the selected heating method is compatible with the chemical and procedure.

Ignition Control

- Keep flammable chemicals away from open flames, sparks, hot surfaces, electrical ignition sources, and static discharge.
- Eliminate unnecessary ignition sources before opening or transferring a flammable chemical.
- Do not use flammable chemicals in an area where burners or other open flames are in operation.
- Ground and bond containers during transfer when static electricity could create an ignition hazard.

Ventilation

- Handle volatile solvents inside an approved chemical fume hood or in another area with ventilation appropriate to the hazard.
- Do not rely on ordinary classroom ventilation when hazardous vapor concentrations may develop.
- Keep containers closed when not in use.

Storage

- Store flammable liquids in approved flammable-storage cabinets or approved safety cans.
- Maintain only the minimum quantity needed for instruction.
- Do not store flammable chemicals near oxidizers or other incompatible materials.
- Do not store flammable liquids in ordinary refrigerators or freezers.
- Use only refrigerators or freezers specifically rated for flammable-material storage when refrigeration is required.

Spill and Waste Procedures

- Keep appropriate spill-control materials readily available.
- Collect flammable waste in compatible, closed, properly labeled containers.
- Store flammable waste in an approved location until collected through the district hazardous-waste process.
- Do not evaporate flammable solvents as a means of disposal.

Required Review Before Use

Before using any reproductive toxin, highly acutely toxic substance, select carcinogen, or highly flammable chemical, the employee shall verify that:

- A current SDS has been reviewed.
- The chemical is permitted under Appendix D.
- A safer substitute is not reasonably available.
- The quantity and concentration are appropriate.
- Required approvals have been obtained.
- The laboratory has suitable ventilation and containment.
- Required PPE is available.
- Spill-response materials are available.
- Waste-disposal procedures have been established.
- Students and unauthorized personnel will not have access.
- Another trained adult will be present when required.

Appendix H:

Fume Hood Safety and Operation

This appendix provides operating and safety requirements for the district's filtered fume hoods. These hoods shall be used only by employees who have reviewed the manufacturer's operating instructions and understand the limitations of the filtration system.

The hood is designed for specific chemical vapors and is not appropriate for every laboratory procedure. Before use, employees shall confirm that the chemicals and procedure are compatible with the installed filters.

Before Using the Hood

Before beginning work, the user shall:

- Review the Chemical Guide located behind the front panel.
- Confirm that each chemical being used is compatible with the installed filter cells.
- Verify that the pre-filters and filter cells are correctly installed.
- Confirm that the chemistry laboratory ventilation system is operating.
- Turn on the hood blower and check for alarms or error messages.
- Confirm that airflow is adequate before placing chemicals inside the enclosure.
- Review the applicable Safety Data Sheets and required personal protective equipment.
- Use only the minimum quantity of each chemical necessary for the procedure.

The hood shall not be used until all required filters are installed and the unit is operating normally.

Prohibited and Restricted Uses

The Paramount fume hood shall not be used for:

- Open flames
- Unknown chemical reactions
- Highly toxic vapors
- Hazardous particulates
- Procedures that generate high concentrations of contaminants
- Chemicals that are incompatible with the installed filters
- Any procedure outside the manufacturer's operating specifications

The hood does not replace the need for appropriate personal protective equipment, safe laboratory practices, or an approved experimental procedure.

Safe Operating Procedures

During use, employees shall:

1. Turn on the blower before beginning work.
2. Position materials far enough inside the enclosure to maintain effective containment.
3. Keep the front air-intake openings clear.
4. Minimize clutter and unnecessary equipment inside the hood.
5. Keep chemical containers closed when not in use.
6. Avoid rapid movements that may disrupt airflow.
7. Do not place the user's head inside the hood.
8. Adjust the sash to the manufacturer's recommended operating position.

9. Use the **100 linear feet per minute setting** when required for chemicals with time-weighted average exposure limits below 50 ppm, consistent with manufacturer guidance.
10. Continuously observe the hood for abnormal odors, airflow changes, alarms, or other indications of filter breakthrough or equipment failure.

Abnormal odors may indicate that the installed filter is no longer effectively capturing chemical vapors. Stop work and report the condition to the Chemical Hygiene Officer.

After Use

After completing work:

- Remove all chemicals, equipment, and waste from the hood.
- Close and properly store chemical containers.
- Clean the work surface using procedures appropriate for the chemicals used.
- Leave the blower running for at least one minute after work has been completed.
- Turn off the blower only after vapors have been cleared and the work area is clean.
- Report any alarm, unusual odor, spill, airflow issue, or suspected filter breakthrough.

The hood shall not be used as a permanent chemical-storage location.

Spill Inside the Hood

If a chemical is spilled inside the hood:

1. Keep the blower operating.
2. Stop the procedure.
3. Prevent others from approaching the area.
4. Follow the chemical's Safety Data Sheet and the district spill-response procedure.
5. Notify the Chemical Hygiene Officer.
6. Clean the spill only when it is within the employee's training and the available spill-response materials are appropriate.
7. Continue operating the blower until the spill has been removed and all detectable vapors have cleared.

For a large spill, highly hazardous chemical, unknown substance, or condition that cannot be safely controlled, evacuate the laboratory and activate the site emergency response procedure.

Blower Failure

If the blower stops or an airflow failure occurs during use:

1. Stop the experiment immediately.
2. Close chemical containers when it is safe to do so.
3. Lower the sash.
4. Evacuate the laboratory.
5. Prevent others from entering.
6. Notify the Chemical Hygiene Officer, site administration, and Operations & Safety.
7. Do not resume work until the hood has been inspected and returned to service.

Filter Safety

Filter cells may be heavy and shall be installed or removed with care. Employees should use appropriate lifting practices and obtain assistance when needed.

Used carbon filters may contain absorbed chemical vapors and shall be treated as chemical waste. Exhausted filters shall:

- Be handled with appropriate PPE
- Be placed in compatible, sealed packaging
- Be clearly labeled
- Be managed through the district-approved hazardous-waste process
- Never be placed in ordinary trash

Pre-filters shall be replaced quarterly or more frequently when required by operating conditions or manufacturer guidance.

Starting the Hood

To start the hood:

1. Confirm that the pre-filters and filter cells are installed.
2. Confirm that the laboratory ventilation system is operating.
3. Turn on the blower using the hood's control switch.
4. Allow the system to complete its startup and sensor warm-up.
5. Check the display for alarms or error messages.
6. Do not begin work until the hood indicates normal operation and adequate airflow.

Refer to the manufacturer's operating manual for model-specific controls and startup procedures.

Alarm and Error Messages

AIR FLOW ERROR

Indicates inadequate airflow.

- Stop work.
- Close chemical containers when safe.
- Lower the sash.
- Do not use the hood until airflow has been restored and the unit has been inspected.

SENSOR 1 ALARM

Indicates that the sensor associated with the carbon filter has detected an elevated level of organic vapors.

- Stop work.
- Close chemical containers.
- Keep the blower operating.
- Notify the Chemical Hygiene Officer.
- Evaluate the filter condition before resuming use.

SENSOR 2 ALARM

Indicates an elevated level of organic vapors in the exhaust ducting.

- Stop work immediately.
- Keep the blower operating.
- Evacuate the laboratory if vapors may be escaping the enclosure.
- Notify the Chemical Hygiene Officer and Site Administration.
- Do not resume work until the condition has been evaluated.

SENSOR WARM-UP

Indicates that the sensor is completing its startup cycle.

- Wait until the warm-up cycle is complete.
- Do not begin chemical work until normal operation is indicated.

MEMORY ERROR

Indicates that stored information, such as filter-use hours or other operating data, may not have been saved correctly.

- Do not rely on the displayed filter-life information.
- Notify the Chemical Hygiene Officer.
- Arrange inspection or service before continued use.

Maintenance

Routine maintenance requirements depend on the amount of hood use and the types of chemicals used.

Users shall follow:

- The manufacturer's operating and maintenance manual
- Appendix I, Routine Maintenance
- District inspection and documentation procedures
- Filter-testing and replacement requirements

The hood shall be removed from service whenever required maintenance has not been completed, the filter condition is unknown, or the system is not operating within the manufacturer's specifications.

Manufacturer Assistance

For assistance with operation, filter selection, compatibility, or servicing, contact Labconco using the current contact information provided in the manufacturer's manual or on the manufacturer's official website.

Appendix I:

Fume Hood Routine Maintenance

Monitoring filter condition and replacing filters when needed are the primary maintenance requirements for the filtered fume hood. Under normal operating conditions, the enclosure requires limited routine maintenance; however, maintenance frequency may need to increase based on the amount of use, the chemicals handled, and local operating conditions.

All maintenance shall be completed in accordance with the manufacturer's operating manual, district safety procedures, and the requirements below.

Weekly Maintenance

Complete the following tasks each week:

- Clean the sash and side panels using an appropriate glass cleaner.
- Wipe interior surfaces with a damp cloth or another cleaning method compatible with the chemicals used in the hood.
- Clean exterior surfaces, especially the front and top, to remove accumulated dust.
- Check for visible damage, residue, blocked airflow openings, or other conditions that could affect safe operation.
- Report unusual odors, alarms, airflow concerns, or suspected filter breakthrough to the Chemical Hygiene Officer.

Note: *The hood shall not be used as a permanent chemical storage area.*

Monthly Maintenance

Complete the following tasks each month, or more frequently when required by the manufacturer or the type and frequency of chemical use.

Filter Condition Testing

- Test the condition of the installed filter using a gas detector tube appropriate for the chemicals used in the enclosure.
- For most chemicals, testing should occur at intervals equal to approximately 20% of the estimated filter service life.
- For formaldehyde, known carcinogens, or suspected carcinogens, testing should occur at intervals equal to approximately 10% of the estimated filter service life.
- Obtain detector tubes that are specific to the chemicals used in the hood.

Note: *The estimated filter life shall not be used as the only basis for determining filter condition.*

Airflow and Face Velocity

For HEPA-filtered models:

- Check the hood's face velocity.
- Replace or service the HEPA filter when the face velocity falls below 90 linear feet per minute, unless the manufacturer specifies a different service limit.
- Remove the hood from service if adequate airflow cannot be maintained.

Filter Replacement

Replace the filter when chemical breakthrough or filter failure is indicated by:

- An unusual or detectable odor
- Gas detector-tube results
- Elapsed service time
- A vapor-sensor alarm
- Analytical testing
- Reduced airflow
- Manufacturer-recommended replacement criteria

Used filters shall be treated as chemical waste and managed through the district-approved hazardous-waste process.

Quarterly Maintenance

Complete the following tasks every three months:

- Replace the pre-filters.
- Replace pre-filters more frequently when dust, debris, or operating conditions cause visible loading or reduced airflow.
- Inspect the pre-filter housing and surrounding surfaces before installing the replacement.
- Confirm that the new pre-filter is correctly installed before returning the hood to service.
- Record the replacement date and the name of the employee or service provider completing the work.

Maintenance Documentation

The Chemical Hygiene Officer or designated employee shall maintain a maintenance log for each fume hood.

The log should include:

- School and laboratory location
- Hood identification or asset number
- Date of inspection or maintenance
- Maintenance activity completed
- Detector-tube testing results
- Face-velocity measurements, when applicable
- Filter and pre-filter replacement dates
- Alarm or error messages
- Corrective actions taken
- Name of the employee or service provider completing the work
- Date the hood was returned to service

Maintenance records shall be retained according to district record-retention procedures and made available during site or district safety inspections.

Removing the Hood from Service

The hood shall be removed from service when:

- Required filters or pre-filters are not installed.
- Filter condition cannot be verified.

- Chemical breakthrough is suspected.
- Face velocity is below the acceptable operating range.
- The blower, sensor, alarm, or other safety component is not functioning.
- Required maintenance is overdue.
- The hood is not compatible with the chemical or procedure being conducted.

The hood shall be clearly marked **“Out of Service”** and shall not be used until the deficiency has been corrected and normal operation has been verified.

Maintenance Schedule Summary

Frequency	Required Maintenance
Weekly	Clean interior and exterior surfaces; inspect for residue, damage, odors, and airflow concerns
Monthly	Test filter condition; check face velocity on applicable models; review sensor status; replace filters when breakthrough or failure is indicated
Quarterly	Replace pre-filters, or more frequently when dusty conditions or reduced airflow are present
As Needed	Replace filters, investigate alarms, correct airflow problems, and remove the hood from service when safe operation cannot be verified