



STATE CENTER COMMUNITY COLLEGE DISTRICT
FRESNO • REEDLEY • CLOVIS • MADERA • OAKHURST • WILLOW INTERNATIONAL

CHEMICAL **HYGIENE PROGRAM**

April, 2016

Chemical Hygiene Plan
State Center Community College District (SCCCD)

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- 1) General Information on Incompatibility of Common Laboratory Chemicals
- 2) Chemical / Hazardous Substances Inventory Form
- 3) Laboratory and Chemical Storage Room Inspection Forms
- 4) Request To Procure And Use A Hazardous Chemical

1.0 SCOPE

1.1 Statement and Scope

The State Center Community College District (SCCCD) is committed to providing a safe working environment for its employees. In response to that commitment and the California Code of Regulations (CCR) Title 8, Section 5191, the program required to be implemented for laboratories is called “Occupational Exposure to Chemicals in Laboratories.

The SCCCDD in response to this regulation has adopted procedures to minimize exposure of employees to hazardous chemicals present in laboratories. This document is called the Chemical Hygiene Plan (CHP) and serves as the written guide for SCCCDD compliance with the “Occupational Exposure to Hazardous Chemicals in Laboratories” regulation.

1.2 Availability

The CHP is readily available for review by staff and others requesting it in the offices of the science areas academic Dean, the Chemical Hygiene Officer (CHO), Director of Environmental Health and Safety (DEHS). The CHP is also available on the SCCCDD website for your review. As needed, other locations may be identified to hold a copy readily accessible to all employees during normal working hours.

1.3 Annual Review

At least annually, the CHO and the Hazard Advisory Task Force will review the CHP for its effectiveness, use and implementation. The DEHS along with others as designated will be involved in such reviews and provide assistance in completing revisions as identified.

2.0 RESPONSIBILITIES

2.1 Chemical Hygiene Officer

The Chemical Hygiene Officer (CHO) is responsible for overseeing implementation of the CHP. The following individuals are identified as the Chemical Hygiene Officer for their respective campus and centers:

Fresno City College – Ashok Naimpally, Dean of Math, Science and Engineering Div.

Reedley College – Jan Decker, Dean of Instruction, Division B

Madera Center/Oakhurst Center – James Chin, Dean of Instruction

Willow International Center – Kelly Fowler, Dean of Instruction

The responsibilities of the CHO are:

- a. Work with administrators and instructors to develop and implement the chemical hygiene program and safe work practices in the laboratory;
- b. Coordinate and monitor implementation of the CHP;
- c. Provide assistance in completing area inspections and maintain records of such;
- d. Provide assistance to instructors and other employees on the CHP as requested;
- e. Know the most current legal requirements concerning regulated substances;
- f. Make recommendations to the Hazard Advisory Task Force regarding safety measures in place and needs for the work areas for safe operation;
- g. Assist instructors in identifying personal protective equipment needs as required by the chemicals to be used;
- h. Identify and assist in providing training for SCCCD employees whose normal work locations include laboratory areas; and

2.2 Hazard Advisory Task Force

The Hazard Advisory Task Force shall assist and advise the CHO on the CHP. The Task Force shall meet at least once per year, or as otherwise directed by the DEHS to review safety issues as identified. The task force should be comprised of the CHO, science area department chairs, a member of the Maintenance and Operations department, the DEHS staff member, and a representative of the purchasing department.

The Task Force shall:

- a. Review at least annually the CHP and propose needed updates and revisions;
- b. Review safety hazards identified and brought to their attention for correction;
- c. Review other issues as requested

2.3 Science Area Instructional Technicians

The Science Area Instructional Technicians are an important part of the CHP and have the responsibility to:

- a. Assist CHO to ensure employees receive appropriate training and have access to the CHP, safety data sheets (SDS), and other reference materials;
- b. Oversee purchase, storage, and disposal of chemicals in accordance with the CHP, including maintenance of an inventory of all products in use in science. Complete Inventory with assistance from CHO as needed (see Attachment 1);
- c. Coordinate with CHO inspections of laboratory and chemical storage areas, include routine inspections of emergency and safety equipment (see Attachment 2);
- d. Coordinate requests from employees for acquisition and use of chemicals, safety issues identified with CHO and complete request with Science Department employees to procure and chemicals not approved for use (see Attachment 3) and;
- e. Coordinate and maintain records of training, chemical inventories, Safety Data Sheets (SDS) and inspections/maintenance of facilities and equipment.

2.4 Science Department Employees

Science department employees are responsible for safety within their work areas including:

- a. Attend training and review safety information for chemicals and equipment in use;
- b. Plan and conduct daily activities in accordance with the Chemical Hygiene Plan (CHP) and the procedures for preparing, handling, and disposing of chemicals;
- c. Inform managers of accidents, spills, injuries and unsafe work practices or working conditions which they believe may be hazardous, and;
- d. Work with Science Area Instructional Technicians and Science Department employees to procure chemicals not normally approved for use (see Attachment 3).

2.5 Students

While students are not covered under the provisions of the “Cal/OSHA laboratory standard”, students shall be made aware of chemical health and safety hazards in labs.

3.0 HAZARD INFORMATION

Information related to the physical and health hazards associated with hazardous chemicals present in the laboratory is important to help minimize the risk of exposure; and the proper response to workplace accidents. To achieve this: the SCCCD staff will review and use: a) employee training and b) available hazard information from chemical manufacturers, including signs, labels, and safety data sheets (SDS).

3.1 Employee Training

All employees whose normal work assignment includes working in a laboratory area shall participate in the annual safety training program. In general the training shall be broadly presented through online coursework or as available on campus course. The information to be provided to employees shall include: a) information on the regulations, b) safe use, handling and storage of chemicals and hazardous substances, c) inventory and SDSs, d) personal protective equipment, e) container labels and signage, f) safety equipment, and e) handling and responding to spills-releases or accidents.

3.2 Safety Data Sheets

Safety data sheets (SDSs) shall be obtained for every chemical or hazardous substance in use in science as required. SDSs provide information on a variety of areas related to the chemicals including: Product Identification, Toxicity Hazards, Health Hazard Data, Physical Data, Fire and Explosion Data, Reactivity Data, Spill or Leak Procedures, and Addition Precautions and Comments.

Each area where chemicals and/ hazardous substances are stored shall maintain the most current SDS for all products stored and/or used in the science department. SDSs will be kept in a location readily accessible to employees working in school laboratories. The CHO for each campus will maintain a master set of SDSs for all laboratory chemicals. All Chemical orders will include a request for the most recent SDS from the supplier.

3.3 Laboratory Signs

Laboratory signs should be posted to provide information in the laboratories and storage areas to identify hazards associated with the laboratory. Signage will include:

- a. Emergency telephone and contact numbers;
- b. Personal Protective Equipment;
- c. Signage for exits, safety showers and eyewash stations, fire extinguishers, fire blankets, and other safety equipment;
- d. Warnings where special or unusual hazards exist, (such as lasers, vacuum, etc.)
- e. Signs indicating “designated areas” as necessary for restricted use.

3.4 Labels

Labels will be placed on all containers used for stock preparations, reagents for laboratory procedures, and used chemical receptacles. Labels on stock bottles should never be removed or altered. Labels will include the following minimum information:

- a. Chemical name (chemical formula alone is not permitted);
- b. Concentration, where applicable;
- c. Hazard information (i.e. flammable, combustible, corrosive, oxidizer, etc.)
- d. and Date prepared and name/initials of the preparer; and

4.0 GENERAL LABORATORY PROCEDURES

4.1 General Laboratory Operations

- a. Always consult Safety Data Sheets and information on chemicals before undertaking an activity with chemicals in the laboratory;
- b. Never perform or allow a laboratory procedure unless you are knowledgeable about the hazards of the procedure before it is attempted;
- c. Ensure all safety equipment is available and in good working condition
- d. No eating, drinking, smoking, gum chewing, cosmetic application, contact lens manipulation, or other such activities in the laboratory.
- e. Do not perform procedures or labs using unauthorized chemicals.
- f. Do not engage in horseplay, practical jokes, or other behavior which might confuse, startle, or distract another person in the laboratory.
- h. Use laboratory equipment only for its designed purpose.
- g. Do not perform procedures which have not been authorized.
- h. Always read the label on a chemical container at least twice - once when you get the container, and again before you dispense the chemical.
- i. Fume hood sash shall remain closed, except when placing or removing apparatus. The hood fan shall be kept on whenever chemicals are present in the hood.
- j. Always use the proper method of transporting chemicals within the facility. Use acid/base carriers when moving corrosive materials.
- k. Avoid inhalation of chemicals; do not “sniff” to test chemicals. Do not taste chemicals.

- l. Do not mouth pipette anything; use suction bulbs.
- m. Wear appropriate personal protective equipment whenever using chemicals (impact goggles do not provide sufficient protection & MUST NOT be worn for chemical work).
- n. Wear a chemical-resistant lab apron or coat to protect exposed body parts and clothing.
- o. Wear non-permeable gloves whenever there is potential for contact with corrosive or toxic material. Prior to use check gloves for pinholes and check material compatibility.
- p. Confine long hair and loose clothing. Remove jewelry from fingers, wrists, and neck. Wear shoes at all times, but do not wear sandals, open-toed or perforated shoes.
- q. Perform a visual inspection of safety equipment and chemical storage areas on a regular basis and report any problems to the CHO.
- r. Know the locations and how to use all protective equipment - eyewash, shower or drench hose, fire extinguisher, and fire blanket.
- s. Stay alert to unsafe conditions and see that they are corrected. Ensure that aisle ways, exits, and paths to safety equipment are unblocked.
- t. Check equipment is in good operating condition, and that glassware is free of chips and cracks. Before leaving the laboratory, turn off all services (e.g., gas, water, and electrically operated devices). Lower the fume hood sash. Lock the laboratory door.
- u. Keep rooms clean and in orderly condition. Keep floors, shelves, and tables clear of chemicals not in use.
- v. Never use the same refrigerator to store both chemicals and food.
- w. Promptly clean-up spills, using appropriate protective apparel and proper procedures.

4.2 Storage/Handling/Use of Extremely Hazardous Chemicals

Certain chemicals have severe hazards that outweigh any instructional benefits that might result from their use in SCCCDD laboratories. Chemicals in the following categories may not be stored, handled, or used in any laboratory in the SCCCDD without specific approval (see Section 5.3) and only under tightly controlled conditions:

- a. Select carcinogens, listed by the National Toxicology Program (NTP) as “known to be carcinogens” or “reasonably anticipated to be carcinogens” or by the International Agency for Research on Cancer (IARC) as Group 1, 2A, or 2B carcinogens;

- b. Reproductive toxicants;
- c. Chemicals with high degree of acute and chronic toxicity ($LD_{50} \leq 50$ mg/kg); and
- d. Unstable, shock-sensitive, or highly reactive chemicals.

4.3 General Handling of Chemicals and Hazardous Materials

1. Toxic Chemicals

- a. Use non-permeable gloves when handling containers of toxic chemicals. Wash affected areas immediately if the chemicals come in contact with skin.
- b. Toxic chemicals shall only be handled in a properly functioning fume hood.
- c. Know the signs and symptoms of exposure to toxic substances. Review emergency response procedures.

2. Flammable Chemicals

- a. Store flammable liquids in approved flammable storage cabinets. Ground safety cans and other metal containers of flammable liquids used near electrical equipment or other sources of electrostatic fields.
- b. When working with flammable chemicals, be certain that there are no open flames, hot surfaces, sparks, or other sources of ignition near enough to cause a fire or explosion in the event of a vapor release or liquid spill.
- c. Assure that appropriate fire extinguishers are in the area. Always have vermiculite, absorbent pillows, or some other chemical absorbent available in the event of a spill.

3. Corrosive Chemicals

- a. Eye protection and appropriate apron and gloves shall always be used when handling corrosive materials. An eyewash and safety shower or drench hose must be readily accessible to areas where corrosives are used and stored.
- b. Carry bottles of acids or bases in protective carriers to reduce possibility of breakage or spills.
- c. Acid or base exposure demands immediate attention! Exposure can occur through direct skin contact, ingestion, inhalation of vapors or skin exposure to mists in the air. Splashes should be washed off immediately with plenty of water for 15 continuous minutes. Remove all affected clothing and seek medical help.
- d. Mineral acids (e.g., sulfuric, nitric, hydrochloric) are quite reactive with metals, generating flammable hydrogen gas.
- e. When performing dilutions, always pour acid into water, never the reverse.
- f. Completely neutralize a spill (with baking soda for acid spills, vinegar for base spills) before cleaning up the area with plenty of water.

4. Reactive Chemicals

- a. *Oxidizers*: Know the reactivity of the materials involved in the reaction. Use shields or other methods for isolating the process if the reaction is expected to be violent.
- b. *Water Reactive* (react with water to produce a flammable or toxic gas): Safe handling of water reactive materials depends on the specific materials and the conditions of use and storage.

- c. *Pyrophoric* (ignite spontaneously upon contact with air): Pyrophoric chemicals shall be used and stored in inert environments. Often the flame is invisible.
- d. *Peroxidizable* (materials which react with air to form explosive peroxides): Peroxides can explode with impact, heat, or friction. Peroxides can form even when the container has not been opened. Date all peroxidizables upon receipt and upon opening. Dispose of all peroxide-forming chemicals and reactives once they can no longer be used, before they reach their expiration date, or if testing shows the presence of peroxides. Do not open any container which has obvious solid formation around the lid.
- e. *Light-Sensitive* (degrade in the presence of light): Light sensitive materials can form new compounds that may be hazardous, or may cause pressure build-up in containers. Store in a cool, dark place in amber colored bottles.

5. Allergens and Sensitizers

A variety of allergens may be encountered in the laboratory. Exposure of skin or the respiratory tract to these agents may elicit dermatitis, asthma, or other responses.

5.0 CHEMICAL PROCUREMENT AND STORAGE

5.1 Ordering and Receiving Chemicals

Prior to ordering any chemical, verify the need, based on the desired use of the chemical. Order only the amount that will be used in one year. Request the SDS from the vendor.

5.2 Chemical Inventory

The CHO will oversee the annual completion of an inventory of chemicals and hazardous materials in use at SCCCD science areas with the Science Area Technician. The inventory will be completed and made available with the Science area SDS library (see Attachment 1). In addition the CHO will ensure the inventory is consistent with the SDS library and the library is up-to-date.

5.3 Requests to Use Chemicals Not on Standard SCCCD Inventory

Employees wishing to obtain and use chemicals not on the SCCCD inventory or which may be otherwise hazardous, staff shall must submit a request, through the Department Chairperson to the Chemical Hygiene Officer CHO. The CHO will review the request in conjunction with the DEHS and others as needed to determine if it use. The request will include the following information:

- a. Name of person submitting the request;
- b. Chemical name, common name(s) (if any), and Chemical Abstract Service (CAS) Registry Number of the desired chemical;
- c. Name and address of the supplier and quantity of the chemical desired;

- d. Name of course and copy of the specific laboratory activity for which the chemical is needed, together with rationale for performing the activity;
- e. Description of specific handling guidelines.
- f. The length of time the chemical will be stored in the school building;
- g. Plan for proper disposal of used chemical products and excess reagents.

5.4 Chemical Storage

All SCCCD laboratories will have a designated chemical storage room with suitable shelf space, arrangement, and ventilation for the nature of the chemicals housed. Chemical storage rooms will have the following features:

- a. Lockable door to restrict access by unauthorized persons.
- b. Have gravity or continuous mechanical ventilation system.
- c. Shelves or cabinets are firmly secured to the wall, with maximum shelf height of six feet. Shelf clips (if present) are corrosion-resistant;
- e. An ABC fire extinguisher and fire blanket near storeroom;
- f. Eyewash and a shower stations;
- g. Dedicated cabinets or inside storage rooms for flammables and acids as needed;
- h. Provide spill control kit, with chemical splash goggles, chemical-resistant gloves, appropriate neutralizing materials and absorbent material, plastic bags, and scooper;
- i. Arrange in chemically compatible families, not in alphabetical order;
- j. Use flammable liquid storage cabinets and acid cabinets as required for safe storage of such materials;
- k. Never store chemicals in aisles or stairwells, on desks or laboratory benches, on floors or in hallways, in fume hoods, or in rooms other than specified.
- l. Mark acquisition dates on all containers; dispose of all peroxide-forming chemicals and reactives once they can no longer be used, before they reach their expiration date, or if testing shows the presence of peroxides;
- m. Do not store chemicals on shelves above eye level or below knee level;
- n. Do not crowd bottles on shelves so that some containers must be moved in order to remove the desired container;
- o. Inspect bottles at least annually and dispose of those that show signs of corrosion or leakage; and
- p. Gas cylinders must be secured in place, with protective caps to prevent valve damage in case the cylinder falls. Store away from heat and direct sunlight.

5.5 Laboratory Fume Hoods

Laboratory fume hood or other mechanism for exhaust to the outside air, away from air intake ports shall be inspected annually for performance capabilities and proper usage. For use of hazardous chemicals where fume hoods are in use:

- 1. Conduct all operations that may generate air contaminants inside a fume hood;
- 2. Equipment and chemicals kept in the hood will interrupt the even airflow.

3. Do not use the hood as a waste disposal mechanism nor to store containers.
4. Keep the hood sash closed at all times except when the hood is in use;
5. Do not have sources of ignition inside the hood when flammable liquids or gases are present;

6.0 PERSONAL PROTECTIVE EQUIPMENT

Maintaining a safe laboratory environment is the responsibility of both the SCCCD and its employees. Personal protective devices and safety equipment must be provided to all employees under the appropriate circumstances and employees have the responsibility of properly using such equipment and apparel.

The SDS can provide some information on the personal protective equipment and safety procedures recommended for a given chemical. The CHO (or designee) along with science department staff shall identify the personal protective equipment and apparel required to suit the hazards which may be identified in the lab.

6.1 Protective Equipment and Personal Protective Equipment (PPE)

The various types of protective equipment in the laboratory areas include eyewash and shower stations, fire extinguishers, fire blankets, goggle sterilizer and chemical spill equipment. In addition, staff may use personal protective equipment (PPE) such as safety glasses or goggles, gloves, chemical or splash resistant aprons to assist their personal safety while utilizing chemicals in the laboratory or storage area.

All safety equipment should be inspected on a regular basis to ensure it is operating properly. Replacement of any broken or otherwise no longer useable personal protective equipment should be completed in consultation with your supervisor. Any unsafe equipment should be removed from use immediately.

7.0 INSPECTIONS AND MAINTENANCE

It is important that all safety equipment in the laboratory be in good operating condition whether or not the equipment is required or optional under the CHP. Employees are expected to check operation of safety equipment prior to engaging in any laboratory procedure. The inspection process in this section describes formal procedures for insuring that equipment is performing to standards.

7.1 Responsibility for Inspections and Reporting

The CHO is responsible to coordinate, oversee, and document inspections of all science laboratories at least three times during the school year:

The SCCCD will provide standard forms with which to carry out all required inspections. The CHO will keep inspection records, with a copy sent to the DEHS. Equipment will be tagged following the inspection, showing the date and results.

7.2 Division-Level Inspection Responsibilities

Personnel, under the direction of the CHO, will inspect laboratory facilities, preparation areas, and storage rooms for compliance with the following standards:

- a. Number of laboratory occupants does not exceed available working area;
- b. Area is free of clutter; aisles and evacuation routes are unobstructed;
- c. Appropriate signage is readily viewable;
- d. Chemicals are labeled appropriately and stored in the proper arrangement; and
- e. All required protective equipment and apparel are present.

Personnel at the school, under the direction of the CHO, will inspect and document the operating condition of the following protective equipment and apparel for compliance with listed standards:

- a. Eyewash - continuous flow of ambient-temperature water at no less than 0.4 gallons per minute; eyewash stations will be flushed and cleaned for at least one minute on a monthly basis.
- b. Safety shower or drench hose - continuous flow of ambient-temperature water at no less than one gallon per minute; showers and drench hoses will be flushed and cleaned for at least one minute on a quarterly basis.
- c. Fire extinguisher - ABC class, fully charged
- d. Goggle sanitizer (if present) - UV bulb and timer operating properly
- e. Master cutoff switches for gas and electricity - operating properly
- f. Safety apparel (laboratory aprons, goggles, gloves) - Usable condition, without holes or other damage that would permit exposure of eyes or skin.
- g. Chemical spill kit - all components present and in usable condition

8.0 RECORD KEEPING

8.1 Chemical Inventory

The SCCCD science areas will develop and utilize a standard inventory list of chemicals approved for use in science laboratories. Inventory information shall include the following:

- a. Chemical name;
- b. Quantity on hand;
- c. Hazard information; and
- d. Storage location.

The inventory will make special note of any chemical not on the standard inventory list of the District, and the will verify that approval has been granted to store and use such chemicals. Chemicals which are no longer used or have exceeded their shelf life will be properly disposed of and removed from the inventory.

The CHO will maintain an inventory and order records for all products in use, with a copy sent to the DEHS. The CHO will coordinate with the DEHS to ensure that updated inventories are made available to local agencies (fire, chemical response, etc.) in compliance with pertinent regulations. Inventory records will be kept on file for at least five years.

8.2 Maintenance and Inspection Records

Records of required inspections will be overseen and retained by the CHO, with copies sent to the DEHS. As necessary, equipment will be tagged to indicate the date and the results of the last inspection.

Identified deficiencies in equipment will be reported in the inspection documentation. A maintenance service request (MSR) will be generated to correct the deficiencies. A copy of the MSR will accompany the inspection documentation. The CHO will monitor the progress of correcting the deficiencies and maintain records of the corrections.

8.3 Training Records

Records documenting the dates and content of chemical hygiene training sessions for each employee will be completed and retained by the CHO. Training records shall be kept for at least five years and/or one year after an employee leaves employment with the SCCCD.

8.4 Incident/Accident Reports

Incident and accident reports are to be retained in the CHO's office and copies will be sent to the DEHS. Reports are kept for at least ten years. All incidents and accidents must be reported on the District's reporting form, even if no injuries occurred. The Dean of Math, Science, and Engineering, President, and the CHO will keep copies of incident reports. These reports will be reviewed to prevent recurrence, with results distributed to all who might benefit.

8.5 Requests to Use Chemicals not on the Standard SCCCD Inventory

The CHO will maintain records of requests and the determination of the Hazard Advisory Task Force. Records shall be kept at least five years. A copy will be sent to the DEHS.

9.0 RESPONDING TO INCIDENTS AND EXPOSURES

9.1 General Accident Procedures

While the practices and procedures specified in the CHP help minimize risk of exposure to hazardous chemicals, employees should be knowledgeable about what to do should other types of accidents occur (including fire, earthquake, explosion, etc.). Laboratory employees should be familiar with their work area and know the location and procedures for using the following safety items:

- Fire extinguisher and fire blanket
- Eyewash and shower/drench hose
- Chemical spill clean-up kits
- First aid kits
- Master utility cut-offs for the laboratory
- Emergency telephone and emergency phone numbers

In the event of a laboratory accident:

- a. Follow the appropriate steps to contain and/or isolate the hazard, if the nature and scope of the accident allow individual employee action. When helping another person, remember to evaluate the potential danger to yourself before taking action. Otherwise evacuate the area immediately;
- b. Report the nature and location of the emergency to the appropriate fire or medical facility. Give your name, telephone number, building, and room number. If individuals are involved, report how many, whether they are unconscious, burned, or trapped, whether an explosion has occurred, and whether there has been a chemical or electrical fire. Do not make any other phone calls unless they directly relate to the control of the emergency;
- c. Notify the campus and District administration and others in the immediate area about the nature of the emergency;
- d. Meet the emergency personnel at the indicated location, or send someone to meet them; and
- e. Do not move any injured person unless they are in further danger. Use general first aid techniques, if appropriate (see Section 10.7).

9.3 Chemical Spill Response

- a. If there is no fire hazard and the material is not particularly volatile or toxic, confine the spill, cover the liquid with absorbent from the spill kit, scoop into a plastic disposal bag, and follow disposal instructions listed on the SDS. Wear appropriate gloves and other personal protective equipment. Clean the contaminated area with soap and water after removing the spill.
- b. If a corrosive material is spilled, confine the spill and neutralize with appropriate agent (baking soda for acids, vinegar for bases). Cover the liquid with absorbent from the spill kit, scoop into a plastic disposal bag, and follow disposal instructions listed on the SDS. Wear appropriate gloves and other personal protective equipment. Clean the contaminated area with soap and water after removing the spill.
- c. If a volatile, flammable material is spilled, immediately extinguish flames and turn off electrical apparatus. Evacuate the area by established routes. Cover the liquid with absorbent from the spill kit, scoop into a plastic disposal bag, and follow disposal instructions listed on the SDS. Wear appropriate personal protective equipment. If the quantity exceeds the employee's ability or training to handle, seal the area until appropriately-trained personnel arrive.
- d. If a volatile, toxic material is spilled outside the hood, evacuate the area by established routes and seal until personnel trained to use appropriate breathing apparatus arrive.
- e. If a nonvolatile, toxic material is spilled, isolate the area of the spill. Consult the SDS for appropriate clean-up procedures and wear appropriate personal protective equipment. If the quantity or toxicity of the chemical exceeds the employee's ability or training to handle, evacuate the area until appropriately-trained personnel arrive.
- f. Use care in cleaning spills involving multiple chemicals, so that reactive combinations do not occur in used chemical receptacles. Treat absorbing material as chemical waste and dispose accordingly; do not dispose in ordinary trash cans.
- d. Get medical attention promptly for any injured person.

10.0 Hazardous Waste or Used Chemicals

The removal of hazardous products and chemicals identified as waste shall be done with staff completing the District's hazardous waste removal form. The Science Area Instructional Technicians shall be responsible for identifying for removal any hazardous waste within the science areas on a regular basis. Science Area Instructional Technicians shall keep a copy of all hazardous waste removal lists and follow up with the CHO and

other District staff to ensure such requests are completed. Reduction of waste by recycling, reclamation, or chemical decontamination of used chemicals will be performed when possible. Indiscriminate disposal of waste chemicals by pouring down the drain, adding them to mixed refuse for landfill, or evaporating volatiles in the hood is illegal and is not an approved method.

Each laboratory will have specially marked containers to receive used chemicals. Leftover reagents and reaction products will be placed in marked containers at the end of each laboratory session. Broken glass will be placed in its own marked container. Broken mercury thermometers will be placed in a separate, marked, sealed container.

Unknown Chemicals. On occasion there are chemical bottles that have lost a label or the label is stained or otherwise unreadable. Unknown chemicals cannot be evaluated for their hazards. Furthermore, they cannot be packaged for disposal until they are assayed. The department with laboratories should make every effort to identify the chemical(s) in the container, using tests such as those in the “Mystery Substances Identification Guide” in the Flinn Scientific Company catalog. Notify the CHO of the presence of containers of unknown chemicals. The CHO will arrange for the pickup of the containers and the necessary procedures to identify the contents.

Biohazards. A biohazard includes only those infectious agents presenting a risk or potential risk to the well being of persons. Orange biohazard identity tags will be used to identify containers of these materials. Specimens labeled in this manner require special disposal, separate from chemical disposal. Notify the CHO when biohazard materials are present. The CHO will arrange for qualified persons to pick up, transport, and dispose of the materials.

General Information on Incompatibility of Common Laboratory Chemicals

When certain hazardous chemicals are stored or mixed together, violent reactions may occur because the chemicals are incompatible. The list below contains information on incompatibilities. Before mixing any chemicals, refer to the chemicals' SDSs for additional information.

<u>Chemical</u>	<u>Is Incompatible & Should Not Be Mixed or Stored With</u>
Acetic acid	Chromic acid, nitric acid, hydroxyl compounds, ethylene glycol, perchloric acid, peroxides, permanganates
Acetylene	Chlorine, bromine, copper, fluorine, silver, mercury
Acetone	Concentrated nitric and sulfuric acid mixtures
Alkali and alkaline earth metals (such as Mg, Ca, Li, Na, K, or powdered Al)	Water, carbon tetrachloride or other chlorinated hydrocarbons, carbon dioxide, halogens
Ammonia (anhydrous)	Mercury, chlorine, calcium hypochlorite, iodine, bromine, hydrofluoric acid (anhydrous)
Ammonium nitrate	Acids, powdered metals, flammable liquids, chlorates, nitrates, sulfur, finely divided organic or combustible materials
Aniline	Nitric acid, hydrogen peroxide
Arsenical materials	Any reducing agent
Azides	Acids
Bromine, Chlorine	Ammonia, acetylene, butadiene, butane, methane, propane (or other petroleum gases), hydrogen, sodium carbide, benzene, finely divided metals, turpentine
Calcium oxide	Water
Carbon (activated)	Calcium hypochlorite, all oxidizing agents
Carbon tetrachloride	Sodium
Chlorates and perchlorates	Ammonium salts, acids, powdered metals, sulfur, finely divided organic or combustible materials
Chromic acid and chromium trioxide	Acetic acid, naphthalene, camphor, glycerol, alcohol, flammable liquids in general
Chlorine dioxide	Ammonia, methane, phosphine, hydrogen sulfide
Copper	Acetylene, hydrogen peroxide
Cumene hydroperoxide	Acids (organic or inorganic)
Cyanides	Acids

<u>Chemical</u>	<u>Is Incompatible & Should Not Be Mixed or Stored With</u>
Flammable liquids	Ammonium nitrate, chromic acid, hydrogen peroxide, nitric acid, sodium peroxide, halogens
Fluorine	Everything
Hydrocarbons (such as butane, propane, benzene)	Fluorine, chlorine, bromine, chromic acid, sodium peroxide
Hydrocyanic acid	Nitric acid, alkali
Hydrofluoric acid (anhydrous)	Ammonia (aqueous or anhydrous)
Hydrogen peroxide	Copper, chromium, iron, most metals or their salts, alcohols, acetone, organic materials, aniline, nitromethane, combustible materials
Hydrogen sulfide	Fuming nitric acid, oxidizing gases
Hypochlorites	Acids, activated carbon
Iodine	Acetylene, ammonia (aqueous or anhydrous), hydrogen
Mercury	Acetylene, fulminic acid, ammonia
Nitrates	Sulfuric acid
Nitric acid (concentrated)	Acetic acid, aniline, chromic acid, hydrocyanic acid, hydrogen sulfide, flammable liquids, flammable gases, copper, brass, any heavy metals
Nitrites	Acids
Nitroparaffins	Inorganic bases, amines
Oxalic acid	Silver, mercury
Oxygen	Oils, grease, hydrogen, flammable liquids, solids, or gases
Perchloric acid	Acetic anhydride, bismuth and its alloys, alcohol, paper, wood, grease, oils
Peroxide, organic	Acids (organic or mineral), avoid friction, store cold
Phosphorus (white)	Air, oxygen, alkalis, reducing agents
Potassium	Carbon tetrachloride, carbon dioxide, water
Potassium permanganate	Glycerol, ethylene glycol, benzaldehyde, sulfuric acid
Selenides	Reducing agents
Silver	Acetylene, oxalic acid, tartaric acid, ammonium compounds
Sodium	Carbon tetrachloride, carbon dioxide, water
Sodium nitrate	Ammonium nitrate and other ammonium salts

<u>Chemical</u>	<u>Is Incompatible & Should Not Be Mixed or Stored With</u>
Sodium peroxide	Ethyl or methyl alcohol, glacial acetic acid, acetic anhydride, benzaldehyde, carbon disulfide, glycerin, ethylene glycol, ethyl acetate, methyl acetate, furfural
Sulfides	Acids
Sulfuric acid	Potassium chlorate, potassium perchlorate, potassium permanganate (similar compounds of light metals, such as sodium, lithium)
Tellurides	Reducing agents

Source: *Introduction to Safety in the Chemical Laboratory*, Academic Press, 1991.

SCCCD

Chemical / Hazardous Substances Inventory Form

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SCCCD**Laboratory Inspection Form**

(Complete and submit to the Department Chair)

Facility: _____ Room # _____

Inspected by _____ Position _____ Date _____

Courses taught in this laboratory _____

Is this laboratory (or does it contain) a “designated area”? _____ Yes _____ No

If so, list the chemical(s) for which it is designated _____

Item	Standard	Meets Standard	Below Standard	Not Applicable	Comments
Room appearance	general cleanliness; aisleways clear	_____	_____	_____	_____
Ventilation	general ventilation operative; auxiliary ventilation to outside	_____	_____	_____	_____
Fume hood	only required in labs using chemicals with PEL/TLV <50 ppm; draw approx. 100 ft/min; exhausts to outside; not used for storage; general cleanliness	_____	_____	_____	_____
Fire extinguisher(s)	Types in use in these rooms: _____.	_____	_____	_____	_____
Fire blanket	nonasbestos, available within 50 ft from any point in lab	_____	_____	_____	_____
Eyewash(es)	delivers continuous stream of water at minimum 0.4 gal/min. for 15 min.;	_____	_____	_____	_____
Shower	required in chemistry labs only; available within 100 ft; deliver continuous stream for 10 min. at 30 gal/min	_____	_____	_____	_____
Drench hose	Lab has this type of station - YES / NO	_____	_____	_____	_____
Master cut-offs	Readily accessible cutoffs for gas, water, electricity (not necessarily within the lab)	_____	_____	_____	_____
Chemical spill kit	contains splash goggles, chemically resistant gloves, neutralizing & absorbing materials, plastic bags, scooper; available within lab	_____	_____	_____	_____
Goggle sterilization	Ready access to UV sterilizer or other approved means (not present in the lab)	_____	_____	_____	_____
Safety goggles	Z87.1 chemical splash goggles (with indirect vents); one per person in lab	_____	_____	_____	_____
Lab apron	chemically-resistant material; one per person in lab	_____	_____	_____	_____
Gloves	non-permeable gloves for preparation and handling; disposable gloves for lab work	_____	_____	_____	_____

Used chemical container(s)	present for substances in use; appropriately labeled	_____	_____	_____	_____
Broken glass container	present in lab area; clearly labeled	_____	_____	_____	_____
Containers of chemicals in lab	not permanently stored in lab; labeled with required information	_____	_____	_____	_____

Posted information and locator signs		Clearly Visible	Not Clearly Visible	Not Present	Not Applicable	Comments
Emergency phone numbers		_____	_____	_____	_____	_____
Exit signs		_____	_____	_____	_____	_____
Evacuation routes		_____	_____	_____	_____	_____
Good lab practices - safety procedures		_____	_____	_____	_____	_____
Equipment:	eyewash	_____	_____	_____	_____	_____
	shower/drench hose	_____	_____	_____	_____	_____
	fire extinguisher	_____	_____	_____	_____	_____
	fire blanket	_____	_____	_____	_____	_____
		_____	_____	_____	_____	_____

Other inspector comments and concerns _____

Inspector signature _____ Date _____

Department Chairperson signature _____ Date _____

SCCCD

(page 1 of 1)

Chemical Storage Room - General Inspection Form

(Complete and submit to the Department Chair)

Facility: _____ Room # _____

Inspected by _____ Position _____ Date _____

Is the chemical storage area a separate, locked room? _____ Yes _____ No

Item	Standard	Meets Standard	Below Standard	Not Applicable	Comments
Room appearance	general cleanliness; aisle ways clear; shelves not crowded; no containers above eye level or below knee level; no containers on floor	_____	_____	_____	_____
Organization	chemicals organized by compatible families; organization posted	_____	_____	_____	_____
Shelving	secured to wall; shelf "lips"	_____	_____	_____	_____
Containers	all containers labeled appropriately; no "bulk" quantities	_____	_____	_____	_____
Ventilation	continuous, to outside air	_____	_____	_____	_____
Fire extinguisher & fire blanket	near exit or within 25 ft. of storeroom; Class ABC extinguisher; Class D if reactive metals (Na, Mg, etc.) are stored	_____	_____	_____	_____
Eyewash and shower/drench hose	available within 25 ft.; continuous stream for 15 min. at 0.4 gal/min (eyewash), 3 gal/min (drench hose), 30 gal/min (shower)	_____	_____	_____	_____
Flammable storage	separate, approved cabinet; venting (if present) of equal integrity to cabinet	_____	_____	_____	_____
Corrosive storage	separate, approved cabinet; nitric acid stored separate from others	_____	_____	_____	_____
Gas cylinders	secured; protective caps in place	_____	_____	_____	_____
Refrigerator	explosion-proof; used only for biologicals or volatile chemicals	_____	_____	_____	_____
Spill kit	near exit or within storeroom; goggles, gloves, plastic bags, scooper, neutralizing and absorbing materials	_____	_____	_____	_____

Other inspector comments and concerns _____

Inspector signature _____ Date _____

Department Chairperson signature _____ Date _____

SCCCD

Request To Procure And Use A Hazardous Chemical

(Complete and submit to the SCCC Chemical Hygiene Officer for consideration)

Employee name _____ Position _____ Date _____

School _____ Room # _____

Name of chemical requested _____

Common names, if any _____ CAS Registry # _____

Name and address of Supplier _____

Quantity requested to obtain _____ Cost _____

Desired date(s) of use _____

Name of course in which the chemical will be used _____

Attach the following materials to support the request. (Incomplete requests will be automatically denied)

- a. Copy of the specific laboratory activity for which the chemical is needed, together with your rationale for needing to perform the activity;
- b. Specific description of the hazards associated with the chemical (including PEL or TLV), along with justification that adequate facilities, equipment, and safety apparel are present at the school laboratory to provide a safe working environment in which exposures will not exceed PEL or TLV for the chemical;
- c. Description of specific handling guidelines (if any), such as from National Cancer Institute, NIOSH, or other recognized agency;
- d. Documentation that the employee has appropriate certification, as well as sufficient knowledge and skills to handle the chemical in the prescribed manner;
- e. Estimate of the length of time the chemical will be stored in the school building and justification that school storage facilities are appropriate for housing the chemical;
- f. Plan for proper disposal of waste products and excess reagents

Employee signature _____ Date _____

Department Chair signature _____ Date _____