

Chemical Hygiene Plan



SAN DIEGO
MIRAMAR
COLLEGE

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Plan Authorization

Date Submitted for review by Facility, Health and Safety Committee:	
Date approved by Facility, Health, and Safety Committee:	
Vice President of Administrative Services Brett Bell	
District Risk Management Representative Karen Woods	

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I. PURPOSE

The San Diego Community College District, recognizing that the health, safety, and well-being of its employees are of paramount importance in the management of the district, affirms its commitment to create and maintain a safe and healthy working environment.

San Diego Miramar College 's Chemical Hygiene Plan (CHP) provides direction to minimize the exposure of employees, students, and the community to hazardous chemicals. This *Plan* sets out provisions to control the exposure and release of hazardous chemicals by way of control methods, work practices, and personal protective equipment. The goal of the CHP is to control the intentional and unintentional movement of hazardous chemicals at San Diego Miramar College.

This *Plan* is applicable to all physical science laboratories, maintenance and facilities operations that use or store hazardous chemicals or generate hazardous waste. All employees who handle non-household chemicals or household chemicals that are used in bulk amounts are also covered by this *Plan*.

II. Authority

The Chancellor has ultimate authority and responsibility for the health and safety programs within the district. Creating broad-based safety accountability is the responsibility of the Chancellor and District leadership.

The Chancellor has designated the Vice Presidents of Administrative Services to act as the *CHP* administrator at San Diego Miramar College.

To ensure effective implementation of this *Plan*, all personnel with designated specific responsibilities are expected to understand and implement the procedures outlined in this document, together with the specific contents of this *Chemical Hygiene Plan* for their assigned facility.

A. Chancellor's Designees

The Vice Presidents of Administrative Service and the Campus Safety officer has the authority and IS responsible for the implementation and maintenance of this *Plan*, including:

1. Developing or adopting the necessary policies and programs to adequately maintain a safe and healthy work and learning environment at the facilities of their responsibility
2. Conducting formal inspections of each assigned workplace. The inspections shall include appropriate documentation of the physical workplace, chemical hazards, work practices, new processes, recently reported accidents, and employee suggestions
3. Conducting investigations of all chemical exposures
4. Providing for proper protective equipment for personnel who handle chemicals and respond to spills
5. Reporting all chemical hazards involving an imminent danger to employees or students immediately to San Diego Miramar College President, with a recommendation for abatement
6. Recommending to the Facility, Health, and Safety Committee any additions or changes to the *Chemical Hygiene Plan*
7. Assisting supervisors in conducting workplace hazard assessments to identify, evaluate, and correct chemical hazards
8. Designating one or more Chemical Hygiene Officers
9. Providing for training to those employees required to abide by this *Plan*
10. Assigning designees to fulfill all aspects of this *Plan*.

B. OEHS Coordinator

The Occupation Environment, Health, and Safety (OEHS) Coordinator is responsible for the oversight and maintenance of this *Plan*. OEHS Coordinator is the Chemical Hygiene

Officer (CHO) for the campus. The CHO will act as the point-contact for chemical health and safety concerns at San Diego Miramar College and the liaison between the Facility and the Risk Management Office regarding chemical issues. The CHO shall be responsible for the following:

1. Reviewing the *Plan* annually and updating, as necessary
2. Overseeing the implementation of the relevant portions of the Chemical Hygiene Plan in concert with administration, the Risk Management Office, the Facility, Health and Safety Committee, and Departments covered by this Plan.
3. Evaluating the adequacy and consistency of chemical safety-related training at Miramar College.
4. Providing technical expertise to the Chancellor's Designee (the VPA and Safety Officer), as requested and required
5. Monitoring Cal/OSHA standards for relevant regulatory changes
6. Provide technical guidance in the development and implementation of the *Chemical Hygiene Plan* within all Departments and safety committees.
7. Conducting periodic program audits and inspections at San Diego Miramar College to evaluate compliance with all Federal, State, County, District, Facility, and College chemical handling and hazardous waste regulations.
8. Reviewing site-specific plans drafted by San Diego Miramar College to ensure compliance and consistency with regulations, this *Plan*, and District policy.
9. Chancellor's Designee and/or OEHS Coordinator will send reports to District Management for the following occurrences: incidents, exposures, and regulatory site visits and inspections.
10. Reviewing plans for installation of engineering controls and new facility construction/renovation, as requested.
11. Ensuring laboratory and waste container inspections as noted in this Plan are conducted as required
12. Coordinating with the Facilities Services Department and other personnel, as applicable, to ensure that eyewashes, safety showers, fire extinguishers, and fume hoods are functional, appropriate, and checked as outlined in this Plan
13. Working with the Risk Management Office to evaluate the appropriateness of available chemical protective equipment
14. Coordinating or assisting in the proper and safe removal of hazardous waste from San Diego Miramar College
15. Acting as a resource for the Safety Committee and relevant Departments in matters relating to hazardous waste and hazardous material safety
16. Maintaining knowledge concerning the hazards presented by the substances present in their areas of responsibility
17. Facilitating communication between the Departments governed by this Plan, the Risk Management Office, and the Facility, Health, and Safety Committee
18. Participating in the annual review of the Chemical Hygiene Plan, in conjunction with Risk Management, the Facility, Health, and Safety Committee, and affected employees
19. Reviewing or assisting with investigating all incidents involving hazardous material and hazardous waste spills, releases, and exposures.
20. Conducting or coordinating relevant training associated with this Plan.

C. Facilities Services

The Facilities Services Department is responsible for the implementation of this *Plan*, including:

1. Monitoring and overseeing hazardous waste activities, including coordinating with the hazardous waste contractor.
2. Monitoring and overseeing universal waste activities.
3. Maintaining equipment necessary for the safe handling of chemicals, such as ventilation systems, eyewash and safety showers (outside the building), fire extinguishers, and alarm systems.
4. Maintaining appropriate permits, including filing required annual elements with the appropriate State and County departments
5. Maintaining the records of inspections, hazard abatements, and training.

D. Supervisors

Supervisors are responsible for implementing and enforcing the provisions of this *Plan*, including:

1. Administrating the locations where chemicals are present and activities where chemicals are used in their area(s) of responsibility.
2. Training employees on proper chemical hygiene practices. Refer to section X on [Training](#).
3. Training employees the locations emergency equipment along with what to do in emergency. Refer to section X on [Training](#).
4. Providing personal protective equipment and technical expertise to employees.
5. Administrating proper chemical and hazardous waste storage locations.
6. Ensure employees comply with all aspects of this and related programs.
7. Reporting to the OEHS Coordinator any chemical exposures, regardless of the route of entry (inhalation, absorption, ingestion, injection).
8. Assigning designees to fulfill all aspects of this *Plan*.

E. Employees

Employees are responsible for

1. Completing all necessary training
2. Complying with all aspects of the *Chemical Hygiene Plan*
3. Properly implementing safe chemical and waste handling practices in the accomplishment of their duties
4. Planning, reviewing, and understanding the hazards of materials and processes in their workspace prior to conducting work.

5. Utilizing appropriate measures to control identified hazards, including consistent and proper use of engineering controls, proper protective equipment, and administrative controls.
6. Developing good personal chemical hygiene habits, including but not limited to, keeping the work areas space and uncluttered.
7. Immediately report all accidents, exposures and near misses to the supervisor and OEHS Coordinator.
8. Staying informed of all chemical hazards they may encounter
9. Reporting any *Plan* deficiencies to their supervisor or the OEHS Coordinator.
10. Faculties are responsible for implementing CHP in their laboratories classrooms to ensure students are aware of the chemical health and safety hazards. This includes the following:
 - a. Enforcing safety practices such as wearing proper protective equipment such as safety goggles in the laboratory classrooms.
 - b. Immediately reporting any large chemical spills, exposures, or accidents to their supervisor and OEHS Coordinator
 - c. Collaborating with the OEHS Coordinator to address any safety concerns and ensure the *plan* remains updated.
 - d. Collaborate with departmental staff and OEHS Coordinator in developing and implementing lab-specific standards operating procedures (SOPs) for handling hazardous chemicals and material in the laboratory classes.
 - e. Reviewing safety rules at the beginning of the semesters with students and having them sign safety waivers to ensure they are aware of the safety hazards in the lab classrooms.
 - f. Each Faculty member that uses hazardous chemicals and materials in an instructional laboratory setting must set forth, in writing, the proper use, handling, and disposal of the chemicals and provide a copy to each student prior to the laboratory exercises.
11. Departmental staff are responsible for conducting safety inspections and ensuring the proper functioning of safety equipment within their respective departments. This includes the inspection of safety showers and eyewash stations, Automated External Defibrillators (AEDs), hazardous materials containers, and related equipment, in accordance with this plan and Spill Prevention, Control, and Countermeasure Plan.

F. Students

While students are not specifically covered under the provisions of the regulations due to their non-employee status, students must be made aware of chemical health and safety hazards in laboratories. Students must complete a safety waiver at the beginning of semesters to ensure they understand the rules and guidelines in the classrooms with hazardous chemicals. Students are responsible for conducting each operation in accordance with prescribed laboratory exercise handout/laboratory manual. Students should never work alone when hazardous chemicals are involved. Blatant disregard for the provisions of this *Plan* will result in being excused from the laboratory or other areas where chemicals are present.

III. DEFINITIONS

1. *Bonded*: a method of equilibrating the electrical potential difference between two containers to prevent the buildup of static electricity by using a conductor attached to both containers;
2. *Chemical*: for the purposes of this *Plan*, a chemical is any liquid, solid, or gas that has been prepared and packaged for use, including any mixtures, dilutions, or solutions thereof; this definition does not include pesticides, food, food additives, food coloring, cosmetics, over-the-counter pharmaceuticals, medical devices, veterinary devices, alcoholic beverages, consumer products packaged for consumer use and used as intended and in amounts a consumer would use, tobacco or tobacco products, or water;
3. *Employee*: any individual who receives compensation from the San Diego Community College District in exchange for services, including employed students;
4. *Explosion proof*: also referred to as 'intrinsically safe;' electrical components that are approved for use in flammable atmospheres such that they do not present sources of ignition;
5. *Grounded*: a means of reducing the buildup of static electricity by providing a conductive path to the earth;
6. *Hazardous/material/Chemical*: a hazardous chemical or material is a substance or mixture that has the potential risk to human health, property, or the environment. These chemicals/materials can exhibit single or combination of these four characteristics:
 - a. ignitable/flammable
 - b. corrosiveness (having low or high pH),
 - c. toxicity (acute or accumulating over time), and
 - d. reactive.
 - e. Refer to section V on [Hazardous Waste](#) for more detail information on what considered flammable, corrosive, toxic, and reactive.
7. *Hazardous Waste Manifest*: a document that is used to track the movement of hazardous waste from the originator of the waste (generator) to its final disposition location; the use of a Manifest does not absolve the generator of responsibility of the waste but is used to confirm the waste was delivered to an appropriate facility that, by permit and construction, is able to receive hazardous waste;
8. *Hazardous waste*: a material that no longer serves a purpose to the Facility or College and has certain characteristics that are harmful to people or the environment; chemicals that are no longer useable for their original intended purpose or are no longer useful to the possessor; unused chemicals that are not wanted by the possessor are considered waste;
9. *Sash*: an integral feature of a fume hood; a moveable partition designed to increase or decrease the accessible area of a fume hood's face which also results in modifying the velocity of in-flowing air;

IV. CONTROL MEASURES

The control of the exposure, release, and spread of hazardous materials and waste is accomplished by the integration of engineering controls, administrative controls, and personal protective equipment.

A. Engineering Controls

Engineering controls are physical modifications to reduce or prevent hazards from coming into contact with workers. Engineering controls include using protective barriers, ventilation, and more.

A.1 Ventilation Barrier – vented chambers and equipment

1.1 Fume hoods (8 CCR 5143, 8 CCR 5154.1, 8 CCR 5191)

Fume hoods are engineering controls that minimize the personal risk of exposure to toxic hazardous materials by placing hazardous chemicals and materials inside a vented chamber. This vented chamber captures the chemical fumes or vapors and exhausts them away from the user. At Miramar College, fume hoods are commonly located in chemistry and biology instructional laboratories and prep areas.

1. **Annual Certification:** Fume hoods are checked and certified annually by a qualified professional. In addition, qualitative assessment of the hoods' ability to draw air by way of a tracer gas or other visualization test shall be performed at least once every two (2) years with the annual flow testing. Facility is responsible for coordinating the annual inspection. The annual certification records should be kept by the facility for three years.
2. **Maintenance:** Any required maintenance or adjustments are performed by Facilities or an outside contractor. During maintenance, the fume hood must be cleared out of all hazardous chemicals and materials.
3. **Emergency:** In the event should the fume hood ever fail (average face velocity drops below 80 fpm and/or fume hood alarms go off), all work in the hood is to be immediately stopped and the sash closed. With proper PPE such as respirator if needed, all hazardous materials and waste must be capped and removed from the hood. Then the fume hood must be labeled "Do Not Use" with date, initials, and reason for removal. Employees must contact maintenance to evaluate the hood and notify the Dean of Science. In the event if the fume hood fails with extremely hazardous chemicals with low occupational levels, the room should be evacuated until hazardous chemicals are safely stored away and air in the room has been replaced. The air is replaced about 10 times per hour in the science room.
4. **Spills:** Spill must be cleaned up immediately using the appropriate spill kit supplies (i.e., organic solvent – kitty litter). Refer to section 11 of this plan and SDS for how to clean up a spill for the chemical you are using.
5. **Important Tips:** Below is a diagram of a typical fume hood in Science 5 (S5) building. The diagram points out important key elements in fume hood that user should know and a table of what to do and not do with a fume hood.



CERTIFICATION

FUME HOOD PERFORMANCE

Room No. 100-211 Room Name Lab Services
Fume Hood No. 100-211 Fume Hood Make/Model 100
Test Date 11/20/2018

This fume hood has been tested in accordance with applicable standards and found to be in compliance with the applicable standards. The minimum average face velocity required by California Code of Regulations, Title 8, Section 5154.1 is 100 fpm. Certified average face velocity of 100 fpm was achieved. This fume hood is in compliance with the applicable standards and is safe for use.

ZARETSKY
SCIENTIFIC EQUIPMENT & SUPPLY, INC.
1000 Harbor Boulevard, Suite 100, Porterville, CA 93257
Office: (559) 566-0000

FUME HOOD SAFETY



Regulation: ANSI/ASHRAE 110-2016; 29 CFR 1910.1450; 8 CCR 5154.1

Fume hood must be checked and certified annually



The baffles (back panel) of the fume hood should never be block. This will prevent air flow.



Sash or the door of the fume hood must be at or below 18" in height. Otherwise, toxic fume will leak out of the fume hood.

- Recommended flow rate is 100 and 150 feet per minute (fpm)
- All fume hoods are equipped with alarm to alert the user if the average flow rate drops below 80 fpm, which should be shut down and repaired.
- Green light indicator should be on when using the fume hood.

√ YES	X NO
Know the chemicals you are working with and consult SDS if you are unsure. Fume hoods must be used when handling volatile chemicals or hazardous materials with low occupational exposure limits (<200 ppm or <50 mg/kg, time-weighted average), such as benzene, formaldehyde, methylene chloride, arsenic, lead, mercury, etc. Keep all materials inside the hood at least six inches from the sash opening. When not working in the hood, close the sash. Closing the sash can help contain fires and explosions within a hood. In addition, fume hood draws the air from the room, thereby increasing the workload of the ventilation system. Ensure that the hood is on by looking at the green light indicator and the affixing of a light-weight tape or other material to qualitatively demonstrate the negative pressure of the hood face.	Never allow your head to enter the plane of the hood opening. For example, for vertical rising sashes, keep the sash below your face; for horizontal sliding sashes, keep the sash positioned in front of you and work around the side of the sash Do NOT block the airflow through the baffles or through the baffle exhaust slots. Fume hoods are not storage units! Do Not use or store biohazardous agents within the hood. Fume hoods do not provide protection against biohazardous agents. In addition, do not use percolate acid inside the hoods. These hoods are not designed for such chemicals. Do NOT leave the caps off the bottles in the fume hood. Fume hoods are not a way to treat hazardous waste by venting them out.

1.2 Biosafety Cabinets (NSF/ANSI 49; 8 CCR 5154.2; 29 CFR 1910.1030)

A biosafety Cabinet is similar to a fume hood; however, its design is for working with biological culturing or infectious materials. It is equipped with an HEPA filter that captures all the air exhausted out of the cabinets. Biosafety cabinets are not designed to be used as fume hoods, so the use of chemicals should be kept to a minimum.

Biosafety cabinets are located in the biology laboratory.

1. **Certification:** Biosafety cabinets must be certified annually, after installation, when they are relocated, or during maintenance by a qualified professional. Facility is responsible for coordinating the annual inspection. The certification records should be kept by facility for three years.
2. **Maintenance:** Any required maintenance or adjustments are performed by facilities maintenance or an outside contractor. During maintenance, the biosafety cabinets must be cleared out completely and the unit must be disinfected.
3. **Emergency:** In the event of biosafety cabinet stop working, staff and students must stop working immediately and close the sash. After 15 minutes, sterilize the unit with disinfectant according to the Biohazard Plan.
4. **Spills:** Follow the rules and guidelines in the Biohazard Plan for biological waste spills in biosafety cabinet. In event of chemical spill, such as solvent, spills must clean up immediately follow by disinfecting the area using absorbance pads and paper towel and placed in hazardous waste container.
5. **Important Tips** – Since biosafety cabinets are mainly used in biological culturing, the rules and guidelines for using one are in the Biohazards Plan.

1.3 Spraying Paint Booth/Hood (29 CFR 1910.94; 29 CFR 1910.107; 29 CFR 1910.1200)

The art ceramic department has a spray paint spraying booth located outside in patio of the ceramic building. The spray paint booth is an enclosed environment specifically designed to contain overspray and protect users from exposure to harmful fumes. As an engineer, controlling the spray booth involves managing ventilation systems that effectively extract fumes away from the operator. The controlled environment also enables the efficient collection of overspray, ensuring that it is properly disposed of as hazardous waste.

1. **Certification:** Spray booths must comply with relevant OSHA standards, such as those for ventilation (29 CFR 1910.94), spray finishing with flammable materials (29 CFR 1910.107), and hazardous communication (29 CFR 1910.1200). However, OSHA does not require specific certification for the booth itself, but it mandates compliance with these standards for safety and health purposes.
2. **Maintenance:** Any required maintenance or adjustments are performed by facilities maintenance or an outside contractor. During maintenance, the spraying booth must be cleared out completely.
3. **Spills:** The spray booth has three walls to contain the overspray of paint and/or adhesive. There is a bucket at the bottom. Use a hose to rinse the walls down. Then disposed of the waste into hazardous waste containers.
4. **Important Tips** – Do not use spraying booth when open fire or heat is in the area. Most paint and adhesive are flammable.

1.4 Other Hoods

In the chemistry department there are smaller ventilation hoods that are not used for hazardous chemicals and materials. They are used for small quantities (<1 L) of non- to low-toxicity substances and are not subject to the provisions of this section. The table-top (or bench-top) hoods are fixed in one location and attached to the ventilation system. The extractor arm (snorkel arm) hood is small and has extractor arm attached to the hood to allow it to move around. It is also connected to the ventilation system. It is effective for capturing heat discharges from instruments such as Atomic Absorption Spectroscopy (AAS) and ICP-OES Spectrometer. The intake of the snorkel must be placed very close to the source to be effective.

A.2 Physical Barrier

2.1 Chemical Storage Units (8 CCR 1930, 8 CCR 1931, 8 CCR 5164, 8 CCR 5533, Cal Fire Code 5003.1.1)

Hazardous chemicals should be stored in specially designed cabinets and refrigerators in chemical storerooms or in hazardous waste accumulation areas.

1. **Structure:**
 - a. Be made of materials compatible with the chemicals stored within (e.g., plastic or wood for corrosives, metal for flammables)
 - b. Flammable cabinets containing flammable chemicals or wastes shall be labeled in red letters "Flammable- Keep Fire Away."
 1. Flammable cabinets should remain closed at all times.
 2. Only three (3) cabinets are allowed to store flammable chemicals in each room.
 - c. Be properly vented if they store volatile organic or volatile corrosive materials and the exhaust ventilation system can accommodate it (e.g., corrosive cabinet venting shall be plastic). Flammable cabinets cannot be hooked up to the ventilation system.
 - d. Chemicals must not be stored at elevations more than six (6) feet from the floor.
 - e. Corrosive cabinets should be outfitted with secondary containment, such as plastic pans, to contain leaks. In addition, they must be clearly marked corrosives.
 - f. Be properly rated for the chemicals they contain, such as fire resistance
 - g. Be properly secured to the structure
 - h. Have doors that close and secure properly
 - i. Be located away from emergency access and egress areas such as hallways, stairwells, and doorways.
 - j. Be stored in locked room
 - k. A chemical storage room that contains flammable lights must be equipped with an ABC fire extinguisher and smoke detector.
 - l. Flammable items stored in refrigerator must be stored in explosion proof refrigerator since the vapors can build up inside the refrigerator and a spark from the compressor, thermostat, lightbulb or electricals switch can ignite the vapors.

- m. Storage areas for hazardous chemicals shall have a manual emergency local alarm with the actuation device located outside of access to the area (24 CCR Part 2, Section 414.7.1).
- n. No food or drink shall be stored in these refrigerators or freezers.
- o. All opaque cabinets and doors to chemical and hazardous waste storage areas shall be clearly marked as chemical storage and have an NFPA 704 hazard identification label affixed.
- p. Entries for each category shall represent the highest hazard class present in the storage cabinet, locker, or area.

2. **Content:**

- a. *Flammable cabinets* – must be limited to sixty (60) gallons of flammable materials each and only three (3) flammable cabinets per area, unless separated by one hundred (100) feet (1926.152(b)(3)).
- b. *Oxidizing acids* (e.g., nitric and perchloric) shall be segregated and separated from other acids. Nitric acid must be stored in a separate liquid-tight compartment (Polypropylene) within an acid cabinet. If nitric acid is mixed with a flammable organic compound such as acetic acid, the heat from the oxidation and neutralization reactions is enough to ignite the flammable material.
- c. *Water reactive chemicals* must not be stored in the same cabinet as flammable or combustible liquids (29 CFR 1910.106(d)(7)(iv)).
- d. Acids and bases shall be stored separately
- e. Concentrated acid caps may be color-coded by the type of acid they are. This help provides an extra safety measure to identify them if the label gets removed or destroyed. If an acid bottle cap becomes cracked or discolored, always replace the cap with the proper color-coded cap (Flinn Scientific recommendation).
 - 1. Acetic Acid – brown cap
 - 2. Phosphoric acid – white cap
 - 3. Hydrochloric acid – blue cap
 - 4. Sulfuric acid – yellow cap
 - 5. Nitric acid – red cap
 - 6. Ammonium hydroxide – green cap
- f. Allow for the proper segregation and separation of incompatible chemicals.
- g. Extremely hazardous chemicals should be stored in Flinn Saf-Stor Cans as a way to provide good secondary containment and protection. See [Appendix D](#) on which chemicals should be stored in secondary containment.
- h. All chemicals must have date of purchase and date of when it was open labeled on the container.
- i. Very volatile flammable chemicals (boiling points at or below 50 C) should be stored in refrigerators or freezers. These refrigerators or freezers must be clearly marked as chemical storage.

3. **Inspections:**

- a. Departmental Staff will inspect chemical storage cabinets' content and structure annually when they do the annual chemical inventory.
- b. Hazardous waste accumulation bunkers will be inspected weekly by departmental staff.

- c. Record shall be kept by the OESH coordinator and be kept for 3 years.

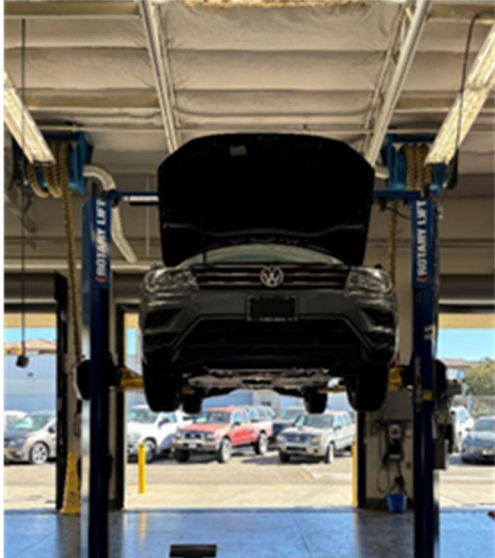
A 2.2 Lifts (ANSI/ALI ALOIM; OSHA of 1970 General Duty Clause; 29 CFR 1910.178)

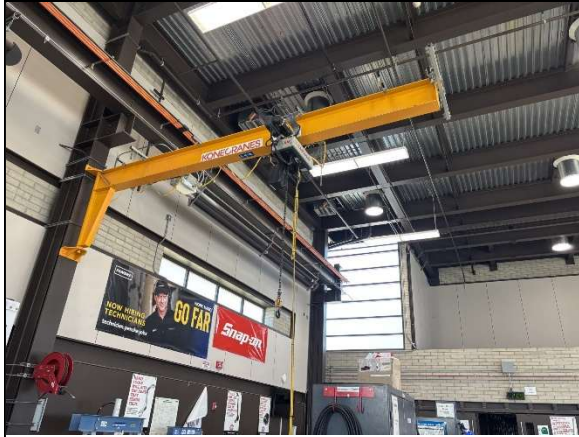
Lifts such as hydraulic lifts, scissor lifts, forklifts, and cranes are critical engineering controls in various industries like automotive, diesel, stockroom operations, and aviation. These lifting devices enhance safety and efficiency by allowing workers to handle heavy or bulky items with precision while minimizing manual labor. In automotive, aviation, and diesel operations, they are essential for lifting engines or components for repair and maintenance. In stockrooms, forklifts facilitate the safe movement of goods, reducing the risk of injury from heavy lifting. Overall, these lifts play a vital role in reducing workplace injuries, increasing productivity, and ensuring the smooth functioning of operations across multiple sectors.

1. **Certification:** Facility is responsible for scheduling a qualified lift inspector to inspect lifts at least once a year. Cranes are inspected quarterly. Certification stickers shall be placed on the lift dating when it was service and the company that did it (ANSI/ALI ALOIM:2020).
2. **Maintenance:** Any required maintenance or adjustments are performed by facilities or an outside contractor. When a lift fails to operate properly, it will be zoned off with tape until it is repaired. Lock out/tag out equipment will be used and removed only when repairs are completed.
3. **Training:** To use any lift, the operator must be trained and, in some cases, certified by a recognized authority or organization.
 - a. The Automotive technology department requires all students, staff, and faculties to undergo training to use the lift annually. Refer to section 12 Training for more information.
 - b. The Diesel technology department does not allow students to handle the lift, only faculties and staff. All staff and faculty were trained by vender when it had first installed them. Diesel technology hydraulic lifts are used a few times per year; whereas the automotive technology hydraulic lifts are used all the time. Students are trained in load balancing, safety stand placement, and use of equipment.
 - c. Crane operators must be certified under the National Commission for the Certification of Crane Operators (NCCCO).
 - d. To use a forklift, operators must be certified every three years. Refer to vehicle plan for more training on driving the forklift.
4. **Emergency:** In event of an emergency, Campus Police (619-355-6405) or 911 must be called immediately to request assistance. Refer to section 11 for more information on emergency procedures.
5. **Inspections:** Lifts are inspected every time they are used. If any defects are identified, submit a work order to the District Service Department. Do not attempt to repair the lift independently. This includes adding some fluids to the system. For further guidance, please consult your direct supervisor.
 - a. Hydraulic Lifts: This includes checking the lift controls, restraints, and locking devices for proper operation, as well as looking for damage or excessive wear.

- b. Overhead Cranes: Employees must inspect visually and check proper operation before use in the instruction or as part of daily work. Employees must inspect the crane, including the hoist, trolley, bridge, runway, hooks, cables, and safety devices for any signs of wear or damage before they are used.
- c. Forklift: Employees are required to conduct a thorough inspection of the forklift prior to operation. Certain departments may mandate a basic daily check, with a more comprehensive inspection on a monthly basis. Other departments, where forklift usage is less frequent, should inspect the forklift each time it is used. An example of a daily forklift operator checklist, as provided by OSHA, can be found in [Appendix A](#).

6. Special Notes: Refer to the diagrams below for

Tips for hydraulic car lift operation: • Untrained individuals are not allowed to operate lifts. • Minimum PPE are safety goggles and safety toe work shoe when operating a lift. • Know the weight of the vehicle you are lifting and the lift maximum capacity <u>BEFORE</u> you use it. Exceeding these limits could result in serious injury or death. • Make sure the lift locking devices (latches) are properly engaged. • Make sure the area is clear of people, tools, and equipment when lowering and raising a vehicle. • Always consider proper weight distribution among all four lift adaptors. • Use high-reach vehicle support stands to assist in stabilizing the vehicle as needed. • Make sure the wheels are properly choked on drive-on lifts.	 Example of a hydraulic lift in the Automotive Technology Department.
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Example of an overhead crane in the Diesel Technology Department

Tips for overhead crane operation:

- Visually inspect crane components (hoist, cables, hooks, brakes, limit switches) for wear or damage before use.
- Verify the crane's load capacity and refer to load charts to avoid overloading.
- Ensure loads are properly rigged and secured with rated lifting devices.
- Clear the lifting path of obstacles and personnel.
- Operate the crane smoothly, avoiding abrupt starts or stops to prevent load destabilization.
- Do not lift heavy objects above 40 inches.

Tips for Forklift operation:

- Always operate the vehicle according to the manufacturer's instructions
- Always wear a seatbelt when the forklift has one.
- Never exceed the rated load and ensure it is stable and balanced
- Do not raise or lower the load while traveling
- Keep a safe distance from platform and ramp edges
- Be aware of other vehicles in the work area.
- Have clear visibility of the work area and ensure you have enough clearance when raising, loading, and operating a forklift.
- Use proper footing and the handhold, if available, when entering the lift.
- Use horns at cross aisles and obstructed areas
- Watch for pedestrians and observe the speed limit
- Do not give rides or use the forks to lift people
- Keep the forklift in clean condition; free of excess oil and grease.
- Repair and maintain according to manufacturer's recommendations.



Example of the Forklift in Stockroom

B. Administrative Controls

Administrative controls are policies and procedures designed to reduce employee and student exposure to hazardous chemicals. The use of standard operating procedures (SOP's), general laboratory guidelines, housekeeping, and chemical handling procedures are administrative controls used by San Diego Miramar College to minimize and contain the release of any hazardous materials.

B.1 Standard Operating Procedures

1. This *Plan*, combined with training, will act as the Standard Operating Procedures for those processes that involve chemical movement, storage, and waste handling.
2. Individual Departments may write supplemental Standard Operating Procedures to delineate site-specific program compliance for their unique programs and hazards.
3. For instructional laboratory applications, the supplemental Standard Operating Procedures will consist of written laboratory experiments.
 - a. Each Faculty member that uses hazardous chemicals in an instructional laboratory setting must set forth, in writing, the proper use, handling, and disposal of the chemicals and provide a copy to each student prior to the laboratory exercises.
 - b. Any deviations by students must be previously approved by the faculty member responsible for the experiment.

B.2 General Chemical Safety Guidelines

1. Personnel should not work with or transfer flammable or toxic hazardous materials alone.
 - a. If staffing levels result in individuals working alone, the area where hazardous materials are stored, mixed, prepared, or used shall have a designated notification system (alarm or communication device such as a cell phone) to alert personnel in the vicinity of a potential emergency.
 - b. The notification system should be constantly monitored by a campus authority cognizant of the alarm's purpose.
2. Employees and students should wash their hands with soap and water before working with hazardous materials and prior to leaving the area where hazardous materials are used.
3. Eating or drinking, including taking medication, using smokeless tobacco, and chewing gum, is not allowed in areas where chemicals are used or stored.
4. Horseplay or practical jokes are prohibited.
5. Running is not allowed in laboratories, stock rooms, or storage locations.
6. Cosmetics or contact lenses shall not be applied in areas where chemicals are used or stored.
7. Door handles must not be touched with gloved hands.
8. Chemicals must not be smelled unless part of a monitored experiment.
9. Chemicals must not be tasted unless it is a food grade item that has not been altered.
10. Mouth pipetting is forbidden.

11. All work with volatile chemicals must be conducted in the fume hoods. Refer to section III.A.1 Fume Hoods for more information on fume hoods operations and procedures.
12. Areas where hazardous materials or waste are stored must be secured from unauthorized access.
13. Unless the hazards can be accurately assessed, mixtures will be handled as if their properties are consummate with the most hazardous component.
14. Chemicals that require special handling or safety requirements must not be ordered without the express approval of the Supervisor. OEHS Coordinator will need to be notify to ensure that adequate controls are available and appropriate. In addition, the head of facility must be notified to coordinate disposal of such chemicals.
15. Lined waste receptacles shall be made available for disposable items used in experiments, chemical sampling, chemical transfers, or materials used to clean up chemical drips and spills.
 - a. The receptacles must be labeled as hazardous waste. Refer to Section VI of this *Plan* for labeling requirements.
 - b. Solid waste hazardous chemicals shall not be placed in these receptacles but shall be placed in separate, properly labeled containers.
 - c. The receptacles shall be subject to the same time limitations as other hazardous waste collection vessels.
16. Wastes must not be treated, neutralized, or intentionally mixed to render them less- or non-hazardous.

B.3 Housekeeping

1. All doorways and walkways are to remain clear and free from obstructions.
2. The area around eyewashes and safety showers shall always remain clear of obstructions to at least twenty-four (24) inches.
3. The area around gas supply valves shall always remain clear of obstructions to a distance of at least twenty-four (24) inches.
4. The areas around the fire extinguisher shall always remain clear of obstructions to a distance of at least twenty-four (24) inches.
5. The areas around electrical panels shall always remain clear of obstructions to at least thirty-six (36) inches.
6. Glassware must not be left out on the laboratory tables or counters and should be stored in cabinets or on the drying racks.
7. Areas shall be kept clean and neat.
8. Procedures that are more likely to result in splashing or spilling of chemicals, such as stirring, vortexing, or decanting, should be performed on disposable bench protectors or absorbent mats.
9. Small drips or spills of chemicals shall be wiped immediately using appropriate chemical protective gloves and proper materials for the chemical.
 - a. Materials used for cleaning minor spills must be disposed of as hazardous waste.

- b. Spilled solid material must be cleaned up immediately and disposed of as hazardous waste.
- 10. Any items used to weigh hazardous chemicals, such as weigh boats or weigh papers, must be disposed of as solid hazardous waste containers.
- 11. Disposable cuvettes, culture tubes, pipettes, pipette tips, and scoops must be disposed of as hazardous waste if used with hazardous chemicals.
- 12. Broken glass must be disposed of in designated containers.
 - a. Broken glass must be cleaned up immediately. Individuals should not be picked up broken glassware by hand. The broken pieces must be swept with a broom into a dustpan or picked up using tongs/forceps and disposed of in the designated container.
 - b. The discarded glassware must not contain any hazardous waste or medical waste. The broken glassware chemicals must be discarded into hazardous waste container and triple rise with proper solvent (i.e., water, acetone, etc.) before placing it in the broken glassware container.
 - c. The broken glassware container must be a puncture proof, double-lined cardboard box or a container specifically designed for disposal of glassware. In addition, the container must be lined with a thick plastic bag
 - d. It must be labeled: CAUTION LABORATORY BROKEN GLASSWARES ONLY! NO HAZARDOUS WASTE or MEDICAL WASTE
 - e. The broken glassware container must be disposed of when more than three-fourth full. Never fill the container more than $\frac{3}{4}$ full! If the box is completely full, it becomes too heavy and difficult to secure closed.
 - 1. The plastic bag must be tied up carefully.
 - 2. The lid and box must be securely sealed with tape
 - 3. The broken entire box should be disposed of in dumpster.
 - 4. Call facility to have the broken glassware boxes removed to the dumpster.
 - f. An empty glass container of a gallon or less may be placed in broken glass container if they are:
 - 1. No hazardous materials can be poured, pumped, or drained from the container
 - 2. No hazardous materials remain in the container that can be feasibly removed,
 - 3. The walls of the container must not contain any significant residual materials,
 - 4. Label is removed or defaced
 - 5. The lid is removed
 - g. Contaminated broken glassware with medical waste must be disposed of separately and must not be placed in the broken glassware box. They will need to be treated properly by the medical waste plan.
 - h. Any broken glassware with hazardous chemical that cannot be rise off must be disposed of in a separate hazardous waste container.
- 13. Micropipette tips that do not contain hazardous or biohazards residue can go into the broken glass container to be thrown away into the trash. Micropipettes tips that have hazardous chemicals and/or biohazards residue will need to be collected into the sharp container and disposed of appropriately.

14. Sharps, such as scalpel or razor blades, must be disposed of in a sharp container.
15. The sharps container shall be disposed of when more than half full.
 - a. The lid must be secured and taped to the container prior to disposal.
 - b. The container must be properly labeled as hazardous waste.
 - c. The container can be placed in the solid hazardous waste receptacle.

B.4 Chemical Handling

Chemical handling is the application of best practices to minimize the risk in using, moving, or transferring chemicals. The basis of safe chemical handling is being aware of what chemicals are present in the workplace and their associated hazards.

B.4.1 Chemical Inventory

1. Each department that uses and stores hazardous material must maintain chemical inventory using a standardized inventory excel spreadsheet.
2. Each department will keep a hard copy of their inventory in the area where the chemicals are stored.
3. A chemical inventory must be conducted annually by departmental staff and records must be sent to OEHS Coordinator when completed by January 31 of each calendar year.
4. The chemical inventory must be cross checked with a document that defines the maximum allowable limits.
5. After completing chemical inventory, the SDS binder must be updated to reflect the current inventory. For chemicals no longer being used, a digital copy of the SDS must be kept on file.

B.4.2 Receiving Chemicals

1. San Diego Miramar College will **not** accept donations of chemicals, either new or partially consumed.
2. All chemicals must be purchased from vendors, manufacturers, or distributors.
3. All chemicals must have the date received and the person receiving them written on the label in permanent ink.
4. Chemicals must be marked with date and initials when first opened.
5. For chemicals received or opened prior to the implementation of this *Plan*, stickers shall be placed on the container reading "Received/opened prior to (date)" and initialed by the individual placing the sticker.
6. As applicable, expiration dates must be written on the container label.

B.4.3 Chemical Labeling

1. Chemicals should be kept and stored in the container supplied by the manufacturer. In the event a chemical must be repackaged due to damage to the container, a new container must be made of compatible with the materials to hold the original chemical, must be labeled the following information:

- a. Product identifier
- b. Signal word
- c. Hazard statement(s)
- d. Pictogram(s)
- e. Precautionary statement(s)
- f. Name, address, and telephone number of the manufacturer or importer.
- g. Label must be legible, permanently displayed, and written in English.
2. If the manufacturer's label is missing any of the above information, the individual who receives the chemical must supplement the label to satisfy all the requirements. This information can be found in the SDS.
3. Secondary Containers
 - a. Secondary containers are containers used to supply smaller amounts of chemicals from bulk containers, dilution from concentrated solutions such as cleaning supplies or solution made for instructional laboratory classrooms.
 - b. Secondary containers must be made from compatible materials to hold the secondary solutions.
 - c. Secondary containers must be labeled with
 1. The name of the chemical or common name, in English
 2. The concentration of the chemical must be noted, if appropriate
 3. Pictogram(s) and/or other applicable hazard warnings. Prop 65 requires us to label if chemicals are causing cancers.
 4. Date chemical was transferred into container
 5. Expiration date if appropriate

B.4.4 Chemical Storage

Refer to section III. A.2 Chemical Storage Cabinet and Refrigerator/Freezer.

B.4.5 Transporting Chemicals and Chemical Waste

1. Chemicals and waste must be securely capped, and lids properly secured prior to transport.
2. Laboratory chemicals and waste should not be transported between facilities by private vehicles
 - a. Chemicals to be transported between campuses or for other District business must be coordinated with Supervisor and OEHS Coordinator before moving chemicals.
 - b. Laws and regulations restrict the volumes of chemicals that can be moved as "materials of trade" without requiring placarded vehicles (49 CFR 173.6).
3. A secondary means of containing chemicals and waste should be used when transporting, such as a poly bucket or cart.
4. If containers carrying more than 4 liters/1 gallon are to be transported, a cart, dolly, or other means should be used.

- a. Carts used to transport chemicals, or waste must be capable of containing a complete failure of the largest container being transported (24 CCR, Part 9, 5003.10.3.4).
5. Interior corridors routinely used to transport hazardous chemicals (having an NFPA 704 rating of 3 or 4) must have an emergency notification device located at each exit access and every one-hundred and fifty (150) feet of travel (24 CCR, Part 2, 414.7.2). The notification system shall
 - a. Be a phone or alarm system
 - b. Be constantly monitored while employees are working with chemicals or wastes.
6. Hazardous chemicals and waste should not be moved via stairwells.
 - a. Hazardous chemicals and waste must be moved between floors by way of elevators.
 - b. Hazardous chemicals and waste that are moved via elevator must have a means of secondary containment.
 - c. The maximum size container allowed to be moved in an elevator is twenty (20) liters (5.28 gallons) (24 CCR, Part 9, 5003.10.4.2).
 - d. The maximum size container for toxic or highly toxic substances is 500 milliliters or 454 grams (24 CCR, Part 9, 5003.10.4.3).
 - e. Students and other employees shall be excluded from elevators while they are being used to move hazardous chemicals or waste (24 CCR, part 9 5003.10.4.1)
 - f. Extreme caution must be taken to not contaminate the elevator surfaces, including floor selector buttons, during transportation.
7. If hazardous chemicals must be moved from higher than the second floor, a means must be implemented to prevent the elevator from going to or stopping at other floors (24 CCR, Part 9, 5003.10.4.4).
8. Incompatible chemicals shall not be transported on the same cart or truck (24 CCR, Part 9, 5003.10.3.6).

B.4.6 Transferring Chemicals

1. Before transferring chemicals from one container to another, secondary container must be labeled – see chemical labeling part C.
2. Chemicals can be transferred from one container to another by way of pouring, pipetting, or pumps.
3. To reduce the risk of spillage when pouring a chemical, such as tipping straight from the main container into secondary container, employee should use appropriate transfer equipment, such as funnels or glass stir rod.
4. Secondary containment equipment, such as plastic containers, shall be placed to catch any drips or spills on the floor or countertops.
5. When transferring flammable liquids, it is important to make sure that static electricity does not build up to create a spark. When transferring flammable liquids from large containers (>4 L) to a smaller container, the flow of the liquid can create static electricity. If flammable chemicals are to be transferred to or from plastic or metal containers, it is important to ground the containers (Code of Federal Regulations, 29 CFR 1910.106(e)(6)(ii)).

- a. If neither of the containers is glass, the containers shall be electrically bonded to one another with a conductive strap. The bulky container and receiving vessel are both metal, then bond the two by firmly attaching a metal bonding strap, or wire to both containers. Ground one of the containers by connecting it to the building ground. If the receiving vessel is made of a non-conductive material such as glass or plastic, use a metal pipe or wire to ground the liquid in the receiving vessel. Also ground any conductive surfaces in contact with the container including the bulk vessel.
- b. Always transfer the liquid slowly as splashing and sloshing creates more static electricity.

B.4.7 Compressed Gas Cylinders (1910.253; Title 8, 4650; Title 8, subchapter 4, 32.1740; 1967 American National Standards Institute, Z49.1-1967)

Compressed gases cylinders are gas under pressure inside a cylinder with absolute pressure exceeding 40 psi at 70 degrees Fahrenheit (20 degrees Celsius). Since gas cylinders have high pressure, they can lead to serious injuries or property damage if mishandled, including potential for explosions, fires, toxic gas release, asphyxiation, and physical harm from falling cylinders due to their weight; the specific hazards depend on the type of gas stored within the cylinder.

Types of Compressed Gases:

Liquefied gases – these gases such as liquid when pressurize at room temperature. They exist inside the cylinder in a liquid-vapor equilibrium. Examples are carbon dioxide and propane tanks. Important to note: When liquid propane is heated to boil, it can explode!

Non-liquefied gases – unlike liquefied gases, these gases do not become liquid under pressure at room temperature or elevated temperatures. They are known as compressed or pressurized gases. This includes nitrogen, helium, oxygen, and argon. It is important to note that if there is a leak, these gases can displace breathable air, thus making the area unsafe.

Dissolved gases are dissolved in a liquid solvent. Dissolved gas cylinders are packed with an inert, porous filter saturated with the solvent which stabilizes the volatile gas. Miramar has acetylene gas, which is dissolved in acetone.

Gas Cylinders	Type of Compressed Gas	Departments
Acetylene	Dissolved gases	Aviation Diesel
Carbon Dioxide	Non-liquefied gases	Biology Aviation
Argon/Carbon Dioxide	Non-liquefied gases	Aviation Diesel
Argon	Non-liquefied gases	Chemistry Diesel Aviation

Oxygen	Non-liquefied gases	Student Health Services Fire Academy Aviation Diesel
MAPP	Liquefied gases	Diesel
Propane	Liquefied gases	Stockroom Facilities Auto Technology Aviation Diesel Technology
Helium	Non-liquefied gases	Physic chemistry
Nitrogen	Non-liquefied gases	Chemistry Diesel
Air	Non-liquefied gases	Chemistry
Freon	Liquefied gases (Refrigerant gas)	Auto Technology
Opteon	Liquefied gases (Refrigerant gas)	Auto Technology
Linde Automotive Calibration Gas Low	Non-liquefied gases (Mixture of gases)	Auto Technology
Linde Calibration Gas Zero	Non-liquefied gases (Mixture of gases)	Auto Technology
R134a	Liquefied gases (Refrigerant gas)	Diesel Technology
R404	Liquefied gases (Refrigerant gas)	Diesel Technology

1. General proper protective equipment for handling gas cylinders should include the following:
 - a. Safety goggles
 - b. Steel-toed shoes
 - c. gloves

2. General Storage



Photo of storage of gas cylinder upright

- a. Areas containing compressed gas cylinders, apart from lecture-size bottles, must be marked "Compressed Gas"
- b. When not in use, including when empty, cylinder valves must be fully closed with protective caps securely in place
- c. When not in use, including when empty, cylinder valves must be fully closed with protective caps securely in place
- d. Cylinders shall be stored upright.

- e. Cylinders containing breathing air for Self-Contained Breathing Apparatus units may be stored horizontally in specifically designed storage racks.
- f. The rack shall be secured from movement
- g. If not stored in an engineered and secured rack, compressed gas cylinders must be secured to a fixed object by attaching it with chains or straps 2/3 of the way up on the cylinder. The restraints must be of sufficient strength and be adequately tight to prevent the cylinder from falling over.
- h. When not in use, including when empty, cylinder valves must be fully closed with protective caps securely in place
- i. Cylinders shall not be stored indoors unless the area is properly ventilated.
- j. Cylinders shall not be stored under stairs or near emergency exits.
- k. Storage areas for cylinders shall be secured to prevent access by unauthorized individuals.
- l. Cylinders stored in exterior locations shall be protected from damage by vehicles using guard posts or other permanent means.
- m. Cylinders should not be stored on the ground to prevent corrosion.
- n. Cylinders shall not be stored in direct sunlight or near other sources of heating to prevent over-pressure hazards.
- o. Empty cylinders shall be clearly marked "Empty" and stored separately from full or in-use cylinders.

3. Lecture Size Bottle

- a. Lecture size bottles are bottles that are small, compressed gas cylinders, typically 12-18 inches long and 2-3 inches in diameter. Although they are small and easily transported, they are still pressurized cylinders which must be considered a dangerous source of high energy. Lecture bottles also often contain high hazard or acutely toxic gases.
- b. Lecture bottles shall be stored in a well-ventilated, dry area that's protected from heat sources and stored in an upright position.
- c. They should be kept away from combustible materials like oil or excelsior.
- d. Lecture bottles should be legibly marked with the chemical or trade name of the gas.
- e. The marking should be stenciled, stamped, or labeled, and should not be easily removed.
- f. Lecture bottles are not refillable and when emptied will need to be placed in hazardous waste.

4. Flammable Gas Cylinder Storage:

- a. Oxygen cylinders shall be stored at least twenty (20) feet away from fuel gas cylinders or separated by at least a five (5) foot wall having a 30-minute fire rating.
 - 1. Cylinders shall be stored at least ten (10) feet away from combustible materials.
 - 2. Exception- for welding operations, oxygen and acetylene cylinders may be stored together on a cart.
- b. Propane cylinders must be stored in specifically designed cage for propane cylinders that is placed outside and away from flammable/combustible materials and buildings (OSHA 1910.110; NFPA 58).

1. The propane cylinder used for forklift can be stored vertically or horizontally. When they are stored horizontally, the relief device must be located at the 12 o'clock position.
2. Propane cylinders must be stored 20 feet from buildings.
3. A propane tank cage should be labeled with clear warnings indicating the presence of flammable gas, including "Propane - Flammable," "No Smoking," and "No Open Flames," along with the supplier's contact information, and should prominently display the flame pictogram as per OSHA's Hazard Communication Standard (HCS) guidelines
4. A propane tank cage shall be positioned in a flat, non-water collecting storage area, away from exits, secure anchoring, and a protective roof to shield from weather elements.
- c. Acetylene tanks
 1. The maximum amount of acetylene that can be stored inside a building is 2000 cubic feet.
 2. Copper tubing and fittings shall not be used for acetylene tank transfer lines.
 3. Acetylene tanks must be stored away from oxygen cylinders by more than twenty (20) feet of distance or with a five (5) foot high fire-resistant wall between them unless they are in use.
 4. The use of oxygen/acetylene carts is permitted in welding operations.
 5. Areas containing acetylene tanks must have a conspicuous 'no smoking or open flame' sign always posted.
 6. Do not open the valve without a regulator attachment to prevent potential expulsion of solvent.
- 5. Transporting**
 - a. Safety glasses, gloves and steel toed shoes should be worn when handling cylinders.
 - b. Regulators shall be removed while moving.
 - c. Cylinders shall be capped while moving.
 - d. Cylinders shall be moved using cylinder carts and shall not be rolled on their edges.
 - e. Cylinders shall be secured to the cart/dolly while moving.
 - f. People would need to be excluded from the elevator when transporting gas cylinders through the elevator. Ideally, one person will send the gas cylinder up/down the elevator, and another person needs to be on the receiving floor to receive it.
- 6. Labeling**
 - a. The cylinder shall be clearly labeled as to its contents.



1. Name of Gas
2. UN Number. Used to Identify the material
3. Hazard Diamond which indicates the flammability and/or toxicity of the gas
4. Warning section. Includes hazard associated with the gas and cylinder
5. First Aid. Tells how to help treat someone who has suffered from exposure to the gas.

b. The label shall not be removed.

c. Cylinders shall be labeled "Full," "In Use," or "Empty" as appropriate.



Example of gas label tag

1. Labels shall be attached to cylinder caps, when in place. Otherwise, as in manifolds, the label shall be attached to the valve assembly.
2. When using a cylinder, take note of the tag. It should look like the one in the image on the right. When opening a new cylinder, the full section must be torn off. When a cylinder is moved to storage partially full, the remaining pressure should be written next to the full portion. When a cylinder runs empty, the full portion must be removed, and the cylinder should be safely moved to storage.
3. Cylinders for Self-Contained Breathing Apparatus units and training cylinders in the Emergency Medical Technician program do not require fill status labels.

- d. Cylinders used for student training in the Fire Technology program shall be clearly marked 'For Training Purposes Only'. Training cylinders used in the Emergency Medical Technician program that are labeled as oxygen, but which contain breathing air shall obscure the oxidizer hazard label and denote that the cylinder contains breathing air.

6. Use

- a. Gas Cylinder should be inspected every use to make sure there is no leak or damage to the cylinders and equipment.
- b. Tools, such as wrenches, shall not be used to open or close valves unless the valve is designed as such.
- c. Valves shall be fully closed before attaching or removing regulators.
- d. Only properly fitting regulators rated for the gas and pressure shall be used.
- e. Regulators and hoses shall be wrench-tight to prevent leaking.
 - 1. Care should be taken not to overtighten connections which can damage the hoses and unions.
 - 2. Unions should be checked with leak detection solutions **prior to use**.
- f. Lubricating grease shall never be used on valve assemblies or regulators.
- g. If cylinders are placed in gas cabinets, the cabinets must (24 CCR 5003.8.6.1)
 - 1. Be constructed of at least 12-gauge steel
 - 2. Have self-closing access panels
 - 3. Have self-closing doors
 - 4. Be compatible with the gas it is intended to hold.
 - 5. Have a ventilation system that creates a negative pressure relative to the surrounding environment.

7. Purchasing

- a. Whenever possible, purchase **returnable** gas cylinders from the vender. Purchasing lecture bottles should be discouraging since they cannot be refilled and the cost associated with disposing of them.
- b. Purchase, dispense, and use the smallest quantity of compressed gas possible.
- c. Do not use compressed gases if less-hazardous alternatives are possible.
- d. Dented, damaged, or visibly corroded cylinders shall not be refilled and should be removed from service for disposal.

8. Refrigerant gases

- a. Refrigerant gas cylinders shall be appropriately marked.
 - 1. Color-coded gray with yellow top
 - 2. Labeled with a DOT-approved non-flammable gas label
 - 3. Clearly labeled 'refrigerant' with the type of refrigerant, if known.
- b. Different refrigerants shall not be mixed in cylinders.
- c. Refrigerant gas cylinders shall be equipped with pressure release devices.
- d. Refrigerant gas cylinders shall not be stored in direct sunlight.
- e. Refillable cylinders shall not be filled more than eighty (80) percent full, sixty (60) percent in warm weather months.
- f. Filling or transferring refrigerant gases can present hazards
 - 1. Refrigerant shall only be transferred to or from cylinders in well-ventilated areas.

- 2. Proper PPE shall be used to protect employees from the hazards associated with cryogenic gases including safety glasses and insulating gloves.
- g. All transfer hoses and equipment shall be inspected before use for cracks or signs of deterioration. Hoses, valves, and unions that are visibly deteriorated shall not be used and shall immediately be replaced.
- h. Whenever cylinders are opened, the valve shall be positioned away from employees and surrounding personnel. Dented, damaged, or visibly corroded cylinders shall not be refilled and should be removed from service for recycling.
- i. Cylinder contents shall be completely transferred prior to recycling or disposal.
- j. Under no condition shall refrigerant cylinders be intentionally vented unless overpressure is an impending hazard.

9. Cylinder Leak:

- a. If a cylinder or valve assembly begins to leak, turn off the cylinder at the cylinder valve if it is safe to do so.
- b. If you are unable to turn off the gas or have any questions, evacuate the area, and contact campus police, your supervisor, and OEHS Coordinator immediately in that order.
- c. DO NOT attempt to remedy the leak or failure.
- d. Always call campus police or 911 when you or a person has been affected by a gas leak. Ensure a safe area before approaching a person who appears to have been affected.
- e. Please remember that non-hazardous gas cylinders, such as helium, can affect the breathable air within the surrounding area. In the event of a significant leak, these gases may displace oxygen, creating an unsafe environment.

10. Training (29 CFR 1910.101)

- a. Anyone who anyone who handles, uses, or stores compressed gas cylinders must receive training on the hazards associated with the gas, proper handling and storage procedures, emergency procedures, and how to inspect cylinders, ensuring they are aware of potential dangers and how to safely manage them. This training is renewed every year.
- b. Both Auto and Diesel Technology department require federal and state certification to work with refrigerant gases. While the certification itself doesn't expire, the EPA mandates that technicians stay up-to-date with new refrigerants and regulations. If new refrigerants are introduced or if there are updates to the rules (such as with the introduction of new refrigerants like R-1234yf), additional training or re-certification may be required to maintain your certification and remain compliant.

C. Personal Protective Equipment

The last line of defense against chemical hazards is personal protective equipment (PPE) since any failure in the measure will result in exposure. The following are San Diego Miramar College's guidelines for personal protective equipment while handling chemicals pursuant to California Code of Regulations, Title 8, Section 3302. For additional information, refer to the District's *Personal Protective Equipment Program*.

Students in instructional laboratories that use chemicals are expected to be informed of and adhere to the following guidelines.

C.1 General Guidelines

1. Long hair shall be tied back to prevent inadvertent contact with chemicals. Hair nets can be used.
2. Unless otherwise arranged for by the Department, students in instructional laboratories are responsible for providing their own, appropriate protective equipment.
 - a. The faculty shall provide specific guidance regarding the type of PPE to be purchased by the students on the first day of class.
 - b. Faculty shall be responsible for enforcing the use of PPE in instructional laboratories.
 - c. Students with insufficient or inappropriate PPE shall be immediately removed from the instructional laboratory until they have the appropriate equipment.
3. Minimum student PPE for instructional laboratories include:
 - a. Chemical splash goggles
 - b. Laboratory coats
 - c. Chemical-resistant (non-latex) disposable gloves.
4. San Diego Miramar College shall provide appropriate PPE for student workers and volunteers providing equivalent protection as that offered to employees.

C.2 Gloves (1910.138)

There are many types of gloves used to protect employees' hands when exposed to hazards such as skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.

1. Purchasing:
 - a. Each Department is responsible for providing employees with an adequate supply of glove types and sizes, based on the chemicals and processes used what it uses for.
 - b. Employees obtain gloves that are properly sized and appropriate for what they are using them for from their supervisor or, depending on Department policy, directly from an external vendor.
 - c. Latex gloves will not be provided due to the potential for latex allergy and the material's lack of chemical protection.
2. Chemical Protection
 - a. Whenever the employee is handling hazardous chemicals, gloves should be worn to protect the employees' hands. The Safety Data Sheet (SDS) or glove manufacturer websites should be consulted for the appropriate chemical protective glove for many chemicals. Remember not all gloves are the same for protection against certain chemicals. The thicker the glove materials, the greater the chemical resistance, but thick gloves may impair grip and dexterity, thus

negatively impacting safety. Some chemicals require doubling up glove protection to protect the users.

1. When gloves must be immersed in solvents for any period, the employee should know the permeation rate of the chemical they are using.

Gloves	Bad (No Protection)	Good Protection
Latex – Natural latex	Latex allergy Poor protection against organic solvents Hard to detect puncture holes	Dexterity and resist abrasion caused by grinding and polishing
Nitrile - copolymer	Not recommended for use with strong oxidizing agents, aromatic solvents, ketones and acetates	Good for peroxide, strong acids and bases, alcohols, aldehydes, ketones, esters, nitro compounds
Neoprene – synthetic rubbers	Poor for halogenated and aromatic hydrocarbons Impaired dexterity	Good for acids, bases, alcohol, fuels, peroxides, hydrocarbons and phenols
Laminated Silver Shield	Poor Dexterity Not punctured resistant	Good for many highly toxic materials including alcohol, aliphatic and aromatic hydrocarbons, chlorides, ketones, and esters.
Butyl Rubber –synthetic rubbers	Butyl rubber does not perform well with aliphatic and aromatic hydrocarbons and halogenated solvents.	Most aggressive chemicals include aldehyde, ketones, esters, and concentrated mineral acids.

- b. Gloves should be inspected for defects prior to donning.
- c. Avoid touching shared clean surfaces with gloved hands
- d. Gloves shall be worn when handling used glassware, including washing previously used glassware regardless of contents.
- e. Gloves with gauntlets that are longer than the wrist may be appropriate to reduce the chance of contaminated wash water entering the glove.
- f. Removing Gloves
 1. If the gloves become visibly contaminated, discolored, or defected (torn), they should be discarded.
 2. Gloves that have been used to handle chemicals shall be removed and disposed of before the employee and students contacts doors leading out of the area or other items that should remain uncontaminated.
 3. Always wash your hands after removing gloves.
3. Thermal Protection
 - a. Whenever an employee works with extreme temperatures, such as heating glassware, retrieving items from autoclave, or retrieving items from a -80 freezer, they will need to wear appropriate thermal gloves to protect their hands.
 1. Cryogenic gloves are used for extreme cold such as working with liquid nitrogen, dry ices, and -80 freezer.

2. Autoclaved Gloves should protect hands and forearm up to 232 degrees Celsius.
3. These gloves are not appropriate for use with chemicals because the fabric can absorb and hold the chemical against a user's hands, resulting in chemical exposure.

Workshop Gloves

- a. Heavy machinery and moving parts – gloves or loose clothing should not be worn around heavy machinery and moving parts to avoid entanglement, thereby severe injury
- b. Worker gloves should be worn when operating equipment or items with sharp edges or hot materials

C.3 Protective Clothing

Protective clothing is used to protect street clothing from biological or chemical contamination and provide additional body protection from physical hazards. In addition, proper clothing is required when working in areas with physical hazardous, biological, and chemical hazardous.

1. Shorts, pants that expose any skin, and skirts or dresses that come above the ankle may not be worn in ~~laboratory areas~~ or areas where chemicals are handled.
2. Tank tops, sleeveless shirts, or shirts that expose the chest shall not be worn when working with chemicals unless covered by a laboratory coat or other protective apparel.
3. All employees, students, and visitors shall wear close-toed and close-heeled shoes whenever they are in areas that handle or transfer chemicals or waste. Flip flops, clogs, or other sandal-type shoes shall not be worn when working with chemicals. Shoes shall cover the entire foot and not be made of woven or perforated materials.

C 3.1 Laboratory coats (Science Instructional Laboratories only)

1. Laboratory coats shall be at least knee length.
2. Laboratory coats shall be worn by employees and students whenever they are working with chemicals or hazardous waste.
3. Laboratory coats shall be inspected prior to each use for defects.
 - a. If defects are noted, the laboratory coat shall not be used.
 - b. The coat shall have a label attached noting the defect.
 - c. Damaged or defective laboratory coats shall be replaced or repaired immediately and may not be worn near chemicals.
4. When working with chemicals, laboratory coats shall be worn with the sleeves unrolled and with all buttons properly buttoned.
5. Laboratory coats shall not be worn outside the laboratory or areas where chemicals are present unless chemicals are being transported.
6. Laboratory coats shall be laundered on a regular basis or when

- a. They become visibly contaminated and/or dirty
 - b. If a laboratory coat becomes contaminated with a chemical, it shall be separately packaged in a plastic bag, taped closed, labeled as 'contaminated' and placed in the laundry basket.
 - c. If a laboratory coat becomes saturated or heavily contaminated with a chemical, it shall be disposed of as hazardous waste.
 - d. At the employee's discretion.
7. Chemical resistant aprons should be worn over laboratory coats while performing operations that may cause splashing such as transferring or consolidating chemicals or wastes.

C 3.2 Protective clothing (Non-Instructional Areas)

1. Non-instructional staff that handle hazardous chemicals should wear protective coveralls or other garments, which may include laboratory style coats, to protect their personal clothes from incidental chemical exposure.
2. Chemical protective clothing, including chemical resistant aprons, may be used to provide protection from splashing or spilling of chemicals such as during transportation or consolidation.

C 3.3 Fire Academy (NFPA: 1975)

1. Fire academy employees and students are required to wear specialized fire-resistant structural fire fighter ensemble (Turnout gear) during fire training. These suits are required by the program.
2. Students are required to rent NFPA compliant annually inspected gear for all IDLH (Immediately Dangerous to Life and Health) environments. The college rents the same gear for the instructors
3. Turnout gear/structural ensemble includes helmet, coat, pants, gloves, boots, flash hood and other protective equipment. The gear is designed to withstand extreme heat and flames.
4. Turnout gear and air supply tanks (SCBA Self Contained Breathing Apparatus) weigh around 75 pounds. Employees and students must demonstrate they can wear the equipment before entering the fire box training section.

C 4 Eye Protection

1. Chemical safety splash-resistant goggles shall be worn by faculty, employees, and students when chemicals are used.
2. All goggles shall be ANSI Z87.1 certified and be clear, not tinted.
3. Tinted goggles or safety glasses are allowed only when using radiation sources requiring shielding.
4. Goggles should be indirectly vented to prevent fogging.
5. Employees shall wear chemical splash goggles or a face shield with safety glasses if the operation can splash chemicals in the eyes.
6. Such operations may include washing, rinsing with high volume water sources, or transferring chemicals, including consolidation.

7. Prescription glasses are not considered safety glasses and cannot be worn without supplemental splash protection.
8. Eyeglasses may be worn under safety goggles only if the goggles are designed to accommodate the temple pieces.
9. Contact lenses may be worn under goggles.
10. Employees and faculty may obtain their goggles from their supervisor or, depending on Department policy, directly from an external vendor.
11. Employees who require prescription lenses may coordinate with their supervisor regarding prescription goggles or other splash protective eyewear.
12. Damaged or severely scratched goggles should be replaced immediately.

C 5 Respiratory Mask

All employees required to wear a respirator mask will need to undergo a Respirator Fit Test. For more information on this policy, please see the district respiratory mask plan.

V. HAZARDOUS WASTE

San Diego Miramar College generates both liquid and solid hazardous waste. The waste must be removed from the site before the 90th day from the listed start date on the individual container. The waste is then transported by a hazardous waste contractor for treatment or disposal at an appropriate licensed facility. Waste can include chemicals or products that have not been used but are no longer needed.

A. Chemical Waste

1. The waste in the storage area shall be segregated and separated by hazard class and placed into containers that are no larger than 5 gallons. Waste shall be separated into at least the following hazard classes in separate containers:
 - a. **Ignitable** (22 CCR 66261.21)
 1. Liquid with a flash point less than 60 C/140 F
 2. Friction sensitive solids
 3. Spontaneously combustible chemicals
 4. Oxidizer (chlorate, permanganate, inorganic peroxide, nitrate, hydrogen peroxide derivatives)
 - b. **Corrosive** (22 CCR 66261.22)
 1. pH less than or equal to 2
 2. pH more than or equal to 12.5
 3. Solids that when mixed with water form solutions equivalent to (1) or (2)
 - c. **Reactive** (22 CCR 66261.23)
 1. Water reactive
 2. Inorganic cyanide or sulfide waste
 3. Capable of detonation or explosion if initiated or heated
 4. Air reactive
 - d. **Toxic** (22 CCR 66261.24)
 1. Specific substances listed in the standard
 2. Oral LD₅₀ < 2,500 mg/kg
 3. Dermal LD₅₀ < 4,300 mg/kg
 4. Inhalation LC₅₀ < 10,000 ppm
 5. Carcinogens- Refer to [Appendix D](#)
 6. Solid waste
 - e. Other waste categories may be designated by the Departments as appropriate.
2. Separate containers shall be used for solid waste, each liquid waste category, and containerized waste for each hazard class (22 CCR 66262).
 - a. '**Containerized**' waste refers to waste in small containers that are placed in a larger container. Both container and chemical are waste.
3. Waste of similar hazard classification may be consolidated into larger containers. Refer to VI.A.2.c of this *Plan* for consolidation guidelines.
 - a. '**Consolidation**' refers to the practice of emptying smaller containers into a larger container to combine liquid or solid wastes into a single container. Only chemical is waste, container is retained for reuse.

4. Only compatible wastes can be placed in the same container. Compatibility shall be determined by the OEHS Coordinator
5. Waste from different Departments shall not be consolidated.
6. Aqueous and organic wastes of the same hazard class shall be placed in separate waste containers.

B. Special Waste Classes

There are specific classes or types of hazardous waste that have additional labeling, packaging, handling, or storage requirements. The mandatory requirements are found in [Appendix C](#) for the following classes of waste

1. Liquid paint - Unused liquid paint shall be managed either by recycling or handling as hazardous waste.
2. Dry paint
3. Oil Rags
4. Used oil - Used oil shall be managed either by recycling or handling as hazardous waste
5. Used oil filters -Used oil filters shall be managed either by recycling or handling as hazardous waste
6. Empty chemical or hazardous waste containers
7. Aerosol cans
8. Pesticides
9. Printer ink and Toner

C. Chemical Waste Containers

Waste shall be collected in containers that contain the waste and any vapors generated to prevent any exposure of the environment or employees to the contents. The following requirements apply to all waste containers.

1. Containers shall be compatible with the material they are designated to contain (22 CCR 66265.172).
 - a. Containers that are to be disposed of with the waste ('lab packed') must be (49 CFR 173.12(b)(2)(i))
 1. One (1) gallon or smaller for glass containers
 2. Less than 5.3 gallons for plastic
 3. Have secure, tight-fitting lids, preferably threaded, that do not react or degrade with the waste class within.
2. Containers shall prevent the leakage of liquid or solid materials.
 - a. If containers show visible signs of degradation or begin to leak,
 1. The contents shall be completely transferred to another container.
 2. The 'new' container shall inherit the accumulation start date of the waste.
 3. The compromised container shall be disposed of properly.
3. All containers shall have appropriate lids that close securely.
 - a. Lids are to remain in place unless waste is actively being added or removed from the container.

- b. Lids shall prevent the intrusion of rainwater or other materials.
 - c. Lids shall be secure enough to prevent spillage of contents if the container is knocked over.
 - d. Lids shall not be adversely affected by the materials they come into contact with.
- 4. Funnels can be used to facilitate adding waste to the containers.
 - a. Funnels shall be
 - 1. Attached to the container in a method that reduces vapor escape, and
 - 2. Self-closing or have lids that attach securely when waste is not being added.
 - b. Funnels may be reused until they show signs of deterioration and are used with compatible wastes only.
 - c. Funnels may be cleaned by rinsing with an appropriate solvent into the waste container while the container is in an appropriately ventilated area.
 - d. Physical blockages shall be removed using all appropriate personal protective equipment in an appropriately ventilated area.
- 5. Containers shall be clearly, visibly, and legibly labeled "Hazardous Waste."
 - a. All waste containers shall have yellow hazardous waste stickers with red lettering.
 - b. Labels shall be at least four inches in dimension on all sides.
 - c. Labels shall be durably affixed to the container.
 - d. The following information shall be clearly and legibly entered on the label in blue or black ink:

Hazardous Waste State and Federal Law Prohibits improper disposal, if found, contact the nearest police or public safety authority or the U.S. environmental protection agency or the California department of health services. Generator name: Miramar Chemistry Address: 10440 Black Mountain Rd San Diego, CA92126. Phone # 1(619) 388-2634 EPA ID number: CAD 981972474 Accumulation Start Date: 3/25/25 Technician Names: Carina Castro Physical State: ☐ Solid; ☒ Liquid Hazardous Properties: ☒ Flammable; ☒ Toxic; ☐ Corrosive; ☐ Reactive; Other: _____ Contents: 95% Ethanol Handle with Care! Contains Hazardous or Toxic Wastes	1. EPA ID number a. San Diego Miramar College has a unique EPA identification number obtained from the State. b. San Diego Miramar College has one EPA identification number for the main campus and one EPA identification number for the airport to be used for tracking all waste at respective areas. c. The facility is responsible for obtaining and maintaining the EPA ID number. 2. Street address of San Diego Miramar College. 3. Contact phone number 4. Hazard class of waste. 5. Physical form of waste 6. Date the first waste was placed into the container or when the container was placed in the storage area.
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- e. Information on the labels shall be protected from chemical exposure.

1. Labels can be placed in plastic protective covers that are permanently affixed to the container.
 2. Labels can be covered with clear tape after the information has been written on the label.
6. Unused portions of chemicals can be disposed of in their original containers as long as the container is properly labeled as hazardous waste.
- a. One example of labeling it as a hazardous waste is to put the container inside a Ziploc bag and label the Ziploc bag with the hazardous waste label.

D. Chemical Waste Storage Facilities (8 CCR 1930, 8 CCR 1931, 8 CCR 1932, 22 CCR 66261, 22 CCR 66262, 22 CCR 66265, 40 CFR 262.34)

1. **Satellite Accumulation Areas**

Satellite accumulation areas are locations near the point of generation of hazardous waste that are used as collection or consolidation locations for small amounts of waste.

- a. Departments that generate waste less than fifty-five (55) gallons of waste per year and who do not have dedicated hazardous waste storage facilities shall be considered 'satellite accumulators.'
 1. These Departments shall arrange with the facility to have their waste moved to a central storage location for removal pursuant to the requirements of this section.
 2. These Departments shall assign an individual as being responsible for coordinating waste removal with the facility
- b. Departments having dedicated storage facilities may accumulate satellite waste near instructional laboratory locations if they abide by the requirements of this section for those containers. These Departments shall coordinate routine disposal with the Facilities Services Department.
- c. Satellite accumulation areas shall
 1. Be locked to prevent unauthorized access
 2. Be labeled on the exterior as containing hazardous waste
 3. Be marked with an NFPA 704 hazard diamond warning label
 4. Have adequate ventilation or be equipped with chemical fume hoods
 5. Have adequate and appropriate storage for hazardous waste containers
 6. Have containers placed in or on a means of secondary containment in the event of spills or leaks.
- d. Waste may be accumulated at or near the point of generation for up to one (1) year (Title 22 Cal. Code Regs., section 66262.34(e)).
 1. The maximum amount for any point of generation area is fifty-five (55) gallons or one (1) quart of acutely or extremely toxic substances.
 - a. The list of acutely toxic substances can be found in 40 CFR 261.31 and 261.33.
 - b. The criteria for extremely hazardous substances can be found in 22 CCR 66261.110.

- e. If that threshold amount is reached before one year, the waste must be moved to the hazardous waste storage facility.
- f. The waste must be removed from the facility within one year of the accumulation start date regardless of when it is moved to the storage facility.
- g. Waste of similar hazard classification may be consolidated into larger containers only if the exact composition is known and compatibility has been assessed by a competent person or the OEHS Coordinator.
 - 1. In this instance, a competent person is a person with knowledge of the chemical and physical properties of all substances to be combined as well as any potential reactions that may occur or products that may be formed during mixing including, but not limited to, the generation of heat, the production of toxic by-products, oxidative reactions, and auto-ignition.
 - 2. Chemicals with the following properties will not be consolidated or combined with any other chemicals; however, residual amounts of the same chemical can be combined into a single container
 - a. Pyrophoric
 - b. Water reactive
 - c. Organic peroxides
 - d. Self-reactive
 - e. Flammable solids.
 - 3. The accumulation start date is the date the waste was originally placed into its first container, not when it was consolidated.
 - 4. Consolidation is only allowed in areas that are properly ventilated, with the use of respiratory protection, or in chemical fume hoods.
- h. Wastes must not be treated, neutralized, or intentionally mixed in an attempt to render the waste less- or non-hazardous.
- i. Satellite accumulation containers can be reused if contents are transferred to other containers prior to end of year time-limit.
 - 1. Containers shall be marked with the date they were emptied which signifies the start of a new accumulation time.
 - a. If not immediately reused, do not label containers as 'empty.'
 - 2. Satellite or laboratory containers that are degraded, compromised, or no longer needed can either be
 - a. Marked 'empty' and disposed of as solid hazardous waste, or
 - b. Triple rinsed with an appropriate solvent and disposed of in regular trash. All rinsates must be captured and managed as hazardous waste.
- j. Satellite waste shall be moved to the hazardous waste storage area when the containers are $\frac{3}{4}$ full.
 - 1. If a satellite waste container is moved to the storage area and the contents are not removed (consolidated), the date the container was moved to the hazardous waste storage area will be marked on the label.
 - a. The original accumulation start date must be retained and visible on the container.
 - b. Satellite waste containers must be disposed of before whichever date comes first

1. One year from the original accumulation date
2. Before the accumulation time limit pursuant to the generator classification (90 or 180 days).

2. **Instructional Laboratory Accumulation Areas**

Instructional laboratory accumulation sites are a subset of satellite accumulation areas. Laboratory accumulation areas are designated containers in instructional laboratories where wastes from experiments are deposited.

- a. Chemical waste generated in instructional laboratories shall be collected in containers, segregated by waste stream, located in functional fume hoods.
- b. Containers shall abide by all requirements set forth for satellite accumulation area containers. Exception- Instructional laboratory accumulation containers shall not exceed 5 gallons in size.
- c. Instructional laboratories that contain waste shall be locked or otherwise have access restricted when class is not in session; otherwise, the waste containers shall be removed.

3. **Hazardous Waste Storage Area**

San Diego Miramar College has hazardous waste storage areas where hazardous waste is consolidated and stored while awaiting disposal in the following locations:

- Near the S5 and S6 buildings (Hazardous Waste bunker)
 - Inside the F1 building (Aviation F1-112A)
 - Inside the S3 building (Automotive S3-301)
- a. The storage areas shall
 1. Be secured from unauthorized employee and student access
 2. Be in an area **away** from pedestrian or vehicle traffic, if possible
 - a. Storage facility shall be at least ten (10) feet away from any street, alley, or public way (8 CCR 1932)
 3. Be located at least fifty (50) feet from the property line if the facility is designated as a large quantity generator and has ignitable or reactive wastes
 4. Be constructed of fire-retardant materials having a fire rating of at least two (2) hours
 5. Protect the waste containers from rain and direct sunlight
 6. Have at least a twelve (12) foot access way within two hundred (200) feet to allow Fire Department vehicle access
 7. Have adequate ventilation, either gravity or mechanical, no more than twelve (12) inches off the ground which provides at least 6 air exchanges per hour (8 CCR 1931)
 - a. Mechanical systems shall have a switch located outside of the facility.
 - b. For gravity systems, a supply vent must also be provided.

8. Have a chemical fume hood with separate ventilation if waste consolidation is to take place
9. Have secondary drainage systems or containment systems to prevent the migration of spilled or leaking chemicals
 - a. Outside storage facilities shall be surrounded by curbs at least 12 inches in height or graded to prevent spills from draining toward buildings, sanitary sewer systems, or sources of surface water.
 - b. If curbed, the basin must have a means to handle rainwater.
10. Have intrinsically safe lighting with external switches
11. Be outfitted with an automatic fire protection system appropriate for the waste categories stored within or have an alarm actuation device. If the alarm is not connected to external emergency responders, then the facility shall be outfitted with a communication device
12. Be equipped with a spill kit
13. Have decontamination equipment external to the storage facility, such as an emergency shower and eyewash, to allow exposed employees to reach such equipment within ten (10) seconds
14. Have an external fire extinguisher no more than ten (10) feet away
15. Have interior aisles of at least three (3) feet
- b. Be externally labeled with NFPA 704 hazard diamond warning sign
- c. Containers may be placed on secondary containment systems.
 1. Secondary containment is required for outdoor storage areas.
 2. Secondary containment systems can be an integral part of the facility.
- d. Incompatible wastes shall be separated by at least three (3) feet or a physical barrier (e.g., separate containment skids).
- e. Hazardous waste containers in the storage area shall be inspected weekly.
 1. Containers shall be inspected for damage, corrosion, leaking, or waste past the allowable accumulation time limits.
 2. A record of the inspection shall contain
 - a. Name of inspector
 - b. Date of inspection
 - c. Notation of any damaged or corroding containers as well as corrective action
 - d. Notation of any waste past accumulation time limits as well as corrective action
 3. San Diego County Hazardous Materials Division provides a *Hazardous Waste Storage Inspection Checklist* that can be used. Refer to [Appendix B](#) for a copy.
- e. As San Diego Miramar College generates less than 1000 kg of hazardous waste (excluding universal waste) per month and/or less than one (1) kg of acutely or extremely hazardous waste (Small Quantity Generator), the waste shall be removed at least every 90 days.
 1. San Diego Miramar College, as a Small Quantity Generator, must also
 - a. Have a Federal, not State, EPA ID number
 - b. Prepare and retain an emergency response plan for chemical incidents. Refer to section 11 of this plan.

- c. Assign an emergency coordinator to respond to spills and initiate emergency responses, as necessary
- d. Train the employees who generate, package, consolidate, transport, or otherwise handle the waste in spill response procedures
- f. Waste shall only be transported by certified hazardous waste contractors.
 - 1. Waste may be moved between buildings if properly transported. Refer to section 3.B.4.e of this *Plan* for guidelines on transporting chemical waste.
 - 2. Waste may not be moved between buildings if the waste must cross municipal roadways.
- g. Emergency notification information shall be posted at the entrance to all hazardous waste storage areas and it must have the following information
 - 1. San Diego Miramar College emergency coordinator, who is the head of facility, responsible 24-hours for chemical spill responses
 - 2. Supervisor responsible for the area containing the storage area
 - 3. College Police Dispatch 619-388-6405 or 911
 - 4. Location of Fire extinguisher, Fire alarm, and Spill kit.

E. Hazardous Waste Profiles

Hazardous waste profiles are records that delineate the content and associated hazard characteristics of a particular waste stream.

- 1. The facility shall coordinate the waste profiles from every Department at Miramar College that generates hazardous waste.
- 2. The San Diego Community College District determines profiles by way of knowledge of hazardous chemical inputs into the waste streams.
- 3. Hazardous waste profiles must accurately reflect the waste in any particular container.
- 4. Profiles should be reviewed by OEHS Coordinator and head of facility.
- 5. Profiles may be reviewed by the hazardous waste contractor.
- 6. Profiles must be updated annually or whenever there is a change before the waste can be removed from Miramar College.
- 7. Copies of each Department's waste profiles must be forwarded to the head of facility.
- 8. Profiles must be kept by Miramar College indefinitely.

F. Hazardous Waste Manifest

A manifest is a tracking document that is used to identify the owner of hazardous wastes throughout the transportation and disposal process (49 CFR 172.204).

- 1. A *Uniform Hazardous Waste Manifest* must be filled out prior to shipment.
 - a. If San Diego Miramar College has entered into an 'authorized representative' agreement with a hazardous waste contractor, the then contractor will complete and sign the manifest for the College. If no agreement is in place, then San Diego

Miramar College is responsible for accurately and correctly completing the manifest.

- b. The Manifest should be signed by a San Diego Miramar College representative, preferably the head of facility.
 1. The Campus representative must receive US Department of Transportation training before they can sign a manifest (49 CFR 172.704).
 2. Refresher training must be completed every three (3) years.
 - c. The Campus representative will be presented or left a copy by the transporter.
 1. This copy must be retained for at least three (3) years.
 2. A copy of this manifest must be sent within thirty (30) days of shipment to DTSC Generator Manifests, Department of Toxic Substances Control, P.O. Box 400, Sacramento, CA 95812-0400.
 - d. An additional copy will be sent to San Diego Miramar College upon receipt at the final waste handling destination.
 1. The head of facility must obtain a copy of the final manifest, signed by the destination facility, within thirty-five (35) days of shipping the waste.
 2. If a copy is not obtained within thirty-five (35) days of shipping the waste, the head of facility must contact the destination facility and the disposal company to determine the status of the shipment.
 3. If San Diego Miramar College does not receive a copy of the signed manifest, the head of facility responsible for the waste must file an *Exception Report* with the Department of Toxic Substances Control. Large quantity generators have forty-five (45) days to file a Report.
 - e. The manifests signed by the TSDF must be kept for three (3) years.
 - f. A copy of the final signed Manifest must be mailed to California Department of Toxic Substances Control within thirty (30) days of the waste pickup. The head of facility must verify whether this is performed by the TSDF or if they must forward a copy to the State.
 - g. It is recommended that the *Manifest* copy offered by the transporter and the final copy signed by the TSDF, as well as any *Exception Reports*, be retained no less than thirty (30) years to indemnify San Diego Miramar College and the District against any future remediation actions.
2. The head of facility is responsible for retaining all copies of the signed manifests.

G. **Biennial Reports (22 CCR 66262.41)**

Biennial reports of hazardous waste activities are required to be submitted by the head of facility before March 1 of each even year.

1. The information required includes
 - a. EPA id number, College name, and address of San Diego Miramar College
 - b. Calendar year covered by report
 - c. ID number, name, and address of all TSDFs waste was sent to for the time covered by the report

- d. Description, EPA hazardous waste number, California Hazardous Waste Category Number, DOT Hazard Class, and quantity for each hazardous waste shipped offsite.
- e. Description of efforts taken to reduce volume and toxicity of waste generated
- f. Description of changes in volume and toxicity actually achieved compared to previous years
- g. Signature of head of facility certifying report.

H. **Contact Information**

Head of facilities oversees hazardous waste collection and coordinating with the hazardous waste hauler. Clean Harbor is our hazardous waste hauler. They pick up hazardous waste once a month.

Head of Facilities Officer	Darrell Rankin drankin@sdccd.edu 1 619-388-7435
Occupational Environmental Health Safety Coordinator	Carina Castro ccastro@sdccd.edu 1-619-388-2634

VI. UNIVERSAL WASTE

Universal wastes (UW) are hazardous wastes of specific categories that are exempt from hazardous waste management requirements; however, as they do pose some hazard to health and the environment, they must be disposed of properly. Regarding universal waste regulations, the term 'handler' is synonymous with 'generator.' The head of facility is responsible for implementation and oversight of this section.

A. Universal Wastes

The following are classes of universal waste (22 CCR 66261.9):

1. Batteries, used and discarded (excluding lead acid vehicle batteries)
2. Electronic devices, used and discarded, such as computers, A/V equipment, cell phones, and monitors (excluding devices to be recycled)
3. Mercury-containing equipment such as thermostats, mercury-containing switches, pressure gauges, mercury thermometers, and gas flow regulators
4. Light bulbs, including but not limited to fluorescent, high-intensity discharge, neon, mercury vapor, sodium, metal halide, and LED bulbs
5. Cathode ray tubes and tube glass from older monitors or televisions
6. Non-empty non-hazardous aerosol cans.
7. Empty printer ink and toner cartridge

B. General Requirements

1. San Diego Miramar College will not accept UW from households or other businesses.
2. For the purposes of UW,
 - a. A small quantity generator accumulates less than five thousand kilograms (5000 kg) of total UW at any time.
 - b. A large quantity generator accumulates more than five thousand kilograms (5000 kg) of total UW at any one time.
3. Containers for UW shall
 - a. Be constructed of materials to prevent the breakage or damage to the UW contained within.
 - b. Have lids that
 1. Are appropriate for the container
 2. Remain in place unless waste is actively being added or removed
 3. Protect the contents from rainwater or other contaminating material.
 - c. Be clearly and legibly marked "Universal Waste" and identify the waste they are to contain (e.g., 'fluorescent bulbs,' 'batteries,' 'mercury thermometers,' etc.).
 - d. Have labels of a different color than hazardous waste labels used at the Facility or College.
 - e. Be clearly and legibly marked with the accumulation start date.
4. If San Diego Miramar College collects mercury-containing implements for disposal, a mercury spill kit must be near the waste container. Employees must receive training specifically to clean up mercury spills.

5. UW must be removed from San Diego Miramar College within one (1) year of the accumulation start date. Waste may be removed by
 - a. A licensed Universal Waste Hauler/Handler
 - b. A recycling facility
 - c. District personnel transporting UW to an appropriate recycle or disposal facility
 - d. A hazardous waste contractor.
6. Records
 - a. Records of UW may be in the form of a Manifest, a Bill of Lading, an invoice, or a receipt. If transported by a hazardous materials transporter, UW may be included on the *Manifest* with other waste streams.
 - b. UW records must include
 1. Waste type/class
 2. Date waste was removed
 3. Name, address, and phone number of handlers removing waste
 4. Reasonable estimate of amount of waste removed
 5. Destination facility name, address, and phone number.
 - c. UW records must be retained by the head of facility for at least three (3) years.
7. Departments or buildings may have separate waste containers as long as they meet the above requirements and are removed or emptied in a timely manner.
 - a. Every container must be marked with an accumulation start date to facilitate timely removal.
 - b. A representative of the Department must coordinate timely removal and disposal with the Campus Chemical Hygiene Officer.

C. **Specific Universal Waste Requirements**

1. **Batteries** (22 CA ADC § 66273.2)
 - a. Batteries must be removed from electronic devices as they are separate waste streams.
 - b. Alkaline batteries larger than 9 V, Nickel-Cadmium (Ni-Cd), and rechargeable batteries must have masking or other heavy-duty tape applied over the positive pole prior to placing in the container.
 - c. Containers holding used batteries shall be clearly and legibly labeled "Batteries." If San Diego Miramar College is disposing of rechargeable batteries and alkaline batteries, two separate waste containers must be used:
 1. "Used batteries- alkaline"
 2. "Used batteries- rechargeable"
 - d. Batteries are dropped off at the stockroom for the campus. When the batteries bin is full, facilities will need to be notified. They will take the batteries to be recycled off campus site.
 - e. Automotive type batteries, such as lead-acid batteries, are not universal waste. When they become waste, they will need to be put in the hazardous waste collection.
 - f. Employees are not allowed to bring batteries from home to be placed in campus universal waste collection site.

2. **Light Bulbs** (22 CCR § 66273.33(b))

- a. Universal waste lamps include the following:
 - 1. Fluorescent light tubes and bulbs, compact fluorescent light (CFL) bulbs, high intensity discharge (HID) bulbs, metal halide bulbs, sodium bulbs, and neon bulbs. These light bulbs have mercury and other hazardous metals.
 - 2. LED light bulbs have a circuit board component and copper metal and are considered to be universal waste.
 - 3. Incandescent light bulbs are not considered hazardous waste and can be thrown in broken glass containers and thrown into trash.
- b. Containers for used light bulbs must provide adequate protection to prevent damage to the bulbs.
- c. Containers holding used light bulbs shall be clearly and legibly labeled "Waste Bulbs."
- d. Particularly for fluorescent bulbs, containers must be sized appropriately to ensure the lid can be affixed properly to protect the used bulbs.
- e. Containers must be stored in a safe, dry area where they cannot be broken or damaged.
- f. If compact fluorescent light (CFL) bulb and other mercury containing bulb break, the following procedure for cleaning up:
 - 1. Clear the area of people.
 - 2. Do NOT use a vacuum or broom to sweep up the broken pieces.
 - 3. Carefully scoop up glass fragments and powder using stiff paper or cardboard and place debris and paper/cardboard in a hazardous waste container with a metal lid.
 - 4. Use sticky tape, such as duct tape, to pick up any remaining small glass fragments and powder. Place the used tape in the hazardous waste container.

3. **Aerosol Cans**

An aerosol can is defined in 40 CFR 273.9 as "a non-refillable receptacle containing a gas compressed, liquefied or dissolved under pressure, the sole purpose of which is to expel a liquid, paste, or powder and fitted with a self-closing release device allowing the contents to be ejected by the gas". Compressed gas cylinders and propane canisters are not aerosol containers and subject to different regulations. Please see section 3.B.4.6 on gas cylinders.

- a. Aerosol cans that are handled as Universal Waste (Title 22, 66261.7(m)) when
 - 1. Non-Empty (containing some residue inside of it)
 - 2. the propellant or product is ignitable, toxic, or corrosive.
 - 3. An example of aerosol cans that are hazardous containing paint, pesticides, and cleaning products.
- b. San Diego Miramar College will not process (puncture, drain, or crush) aerosol cans (Health and Safety Code 25201.16(2)).

- c. Empty aerosol cans, devoid of product and propellant, can be recycled.
- d. Intentionally discharging an aerosol solely for the purpose of rendering it non-hazardous is considered a hazardous materials release and is strictly forbidden. Piercing or otherwise compromising the can in an effort to release residual product or propellant is strictly forbidden.
- e. Containers holding used or waste aerosol cans shall be clearly and legibly labeled "Waste Aerosol Cans."
- f. If not covered after cans are added, the lid must be secured at the end of each workday.
- g. The container must be stored in an area with adequate ventilation.
 - 1. Flammable aerosol can be stored in flammable cabinets.
 - 2. The container must be stored away from any heat sources, including direct sunlight.
- h. Incompatible aerosol can be disposed in separate universal waste containers.

4. Electronic Devices

- a. Electronic devices to be disposed of do not need to be placed in a container. Waste devices can be placed in a central collection location.
- b. Each device must be marked with the date it was determined to be a waste.
- c. Devices must be removed from San Diego Miramar College no more than one (1) year after the date marked on the device.
- d. Before disposing of electronic devices, any equipment that has an SDCCD tag on it must undergo Equipment Transfer Document (ETD) process. This form is at the facilities office and will need to be signed off by your supervisor. There needs to be two separate forms for computer electronics compared to regular electronic with SDCCD tags.

VII. EMERGENCY EQUIPMENT

A. **Eyewashes and Safety Showers** (ANSI 2358.1.2014, 8 CCR 5162).

Emergency eyewashes and safety showers are required in areas where employees use and store hazardous chemicals such as corrosive, flammable, and/or skin absorbing chemicals. Specifically, safety eye wash and shower are in instructional classrooms, preparation rooms, and hazardous waste storage area in the following departments: science departments, athletic department, art, auto technology, diesel technology, aviation, facility, and fire department.

1. Installation:

- a. Eyewashes and safety showers shall be clearly identified with signage visible from at least twenty (20) feet away.
- b. Eyewashes and showers must be accessible within ten (10) seconds or one hundred (100) feet of any area where hazardous chemicals or waste are used or stored.
- c. Safety shower handles must be no more than sixty-nine (69) inches from the floor. Extensions to the handle may be added for employees or students in wheelchairs.
- d. Eyewashes shall be located between thirty-three (33) and fifty-three (53) inches from the floor.
- e. Eyewashes must have protective caps over the spouts to prevent contamination.
 1. The caps must remain in place except during testing and use.
 2. Water pressure should be sufficient to remove caps during actuation.
- f. The areas around eyewashes and safety showers must be clear of debris and obstructions in a radius of at least twenty-four (24) inches from the center of the shower head.

2. Monthly Testing:

- a. Departmental staff are responsible for conducting monthly tests of safety eyewash and shower stations; however, eyewash and safety shower stations located outside the buildings must be inspected by the facility to ensure proper functionality. Each station shall be tested by flushing the unit for at least ten (10) seconds to clear any debris. In certain cases, stations may require more frequent flushing due to age-related wear or degradation.
- b. If the water is not clear, the system shall be flushed for an additional time.
 1. If after more than two (2) minutes the eyewash, facewash, or shower does not emit clear water, the test shall be aborted, and the unit shall be marked "Do Not Use" with the date and individual who made the determination.
 2. The Dean of the affected Department shall be notified.
 3. The Facilities Services Department shall be contacted as soon as possible by the individual who conducted the test to perform extended clearing or maintenance, as required.

4. Chemical operations covered by the failed unit shall be suspended until it is operational and emits clear water.
- c. Records of this test (initial and date) shall be durably attached to the shower or eyewash.
 1. When a tag is fully filled out, attach a new one
 2. To demonstrate program continuity, the old tag shall be retained on the unit for no less than six (6) months.
 3. Tags that break or fall off must be securely reattached to the unit.
 4. If shower, and eyewash units have not been inspected or the inspection has not been documented for the previous month, all operations with hazardous chemicals shall be immediately suspended until the units are checked. The use of chemicals by students is forbidden in instructional laboratories if nearby safety showers and eyewashes have not been checked.

3. Annual Testing:

- a. Eyewash and safety showers shall be tested annually for proper flow rates and temperature.
- b. Flow may be determined by installing in-line flow meters and actuating for one (1) minute or by actuating the system and measuring the volume of water discharged.
 1. Safety showers must be capable of emitting twenty (20) gallons per minute (or emitting 3.33 gallons in 10 seconds).
 2. Eyewashes must be capable of emitting 0.4 gallons per minute.
- c. Water must be colorless and odorless.
- d. The water temperature must be between 60 and 100 F.
- e. Annual testing results must be kept by the Department responsible for the unit's area, and records shall be kept for at least three (3) years.

B. Fire Extinguishers (8 CCR 5543, 8 CCR 6151, NFPA 10).

1. Locations

- a. Fire extinguishers must be within thirty (30) feet of each instructional laboratory.
- b. Chemical storage locations containing flammable liquids must have a fire extinguisher outside of the door but within ten (10) feet of the storage location.
- c. Areas within buildings that contain flammable liquids, such as storage cabinets, must have a fire extinguisher 10-25 feet from the storage area.
- d. The location of the fire extinguishers must be clearly identified with signage and visible from at least thirty (30) feet away.
- e. At least twenty-four (24) inches of space must remain clear around each fire extinguisher.
- f. Fire extinguishers must be stored in cabinets or on hangars to prevent damage.
- g. Fire extinguishers for the appropriate class of fire (A, B, C, or D) for the hazards present shall be immediately available. Combination extinguishers (e.g., A/B/C) are allowed.

2. Monthly Inspection:

- a. Fire extinguishers shall be checked monthly by facility

- b. The gauge on the extinguisher must read 'full' and be in the green portion of the gauge.
 - c. The pull pin must be in place in the handle assembly. A tamper seal must be in place indicating the extinguisher has not been discharged.
 - d. The extinguisher must be physically lifted to determine if extinguishing agent is present in the unit.
 - e. A tag recording the inspection must be attached to the extinguisher or the mounting assembly.
 - f. If any of the above conditions are deficient, the individual conducting the check shall immediately remove the extinguisher from the hanger and notify the Facilities Services Department to address the extinguisher.
 - g. In the event that an extinguisher has not been inspected in the previous month, an immediate inspection shall be conducted and documented on the tag.
 - h. In the event that an extinguisher has not been inspected for the previous two months, the extinguisher shall be removed from service and the Facilities Services Department shall be contacted to replace the extinguisher.
 - i. In the event that fire extinguishers have not been properly inspected is within thirty (30) feet of an area where chemicals are being used or stored, all operations with chemicals in that area shall be immediately suspended until a functioning extinguisher is available
3. Annual Inspection:
- a. Fire extinguishers are inspected and serviced annually by an external contractor.
 - b. The Facilities Services Department is responsible for coordinating the annual service.
 - c. Tags are marked with the month and year of the annual inspection. The inspection will expire one year after the date marked on the tag.
 - d. During annual testing, replacement or temporary fire extinguishers must be made available.
 - e. Records of monthly and annual inspections are attached to the fire extinguisher.

C. First Aid Kits (8 CCR 3400; ANSI/ISEA Z308.1 -2021)

- 1. A first aid kit should be in each area where hazardous chemicals or waste are used or stored.
- 2. The kit shall be inspected biannually by the department
 - a. A record of this inspection shall be maintained with the first aid kit.
 - b. The kit shall be restocked as necessary or during the annual inspection.
 - c. Bandages should be latex free
- 3. First Aid kits supply list for common laboratory classroom of twenty-five (25) people (ANSI Type B):

50x Adhesive Bandage	1x CPR Breathing Barrier
2x Adhesive Tape	2x Burn Dressing (gel soaked)
25x Antibiotic Application	25x Burn Cream
50x Antiseptic (i.e. alcohol wipe)	2x Cold Pack

2x Eye Covering (with means of attachment)	1x Foil Blanket
20x Hand Sanitizer (1/32 oz)	1x First Aid Guide
4x Medical Exam Gloves pairs	2x Roller Bandage (2 in x 4 yds)
1x Scissors	1x Splint
4x Sterile Pad (3x3")	1x Tourniquet
4x Trauma Pad (5x9")	2x Triangular Bandage

D. Spill Response Kits

1. Spill response kits shall be located near areas where chemicals are handled, stored, used, or transferred.
2. The kits will be inspected annually by the department. In addition, spill kits will need to be updated when a new chemical (one that was not used before), and/or quantity of chemicals being used are increased. Any missing, outdated, obsolete, or degraded supplies shall be replaced during the inspection.
3. Spill kits shall be restocked whenever any portion is used for any purpose.
4. Materials within the spill kit will be appropriate for the chemicals used in the immediate vicinity.
 - a. Basic chemical spill kit may include the following:
 1. Chemical resistant container(s) with hazardous waste label
 2. Dustpan, whisk broom, forceps, and scooper
 3. PPE – goggles, gloves, face shield, shoe covers or boots, disposable apron, or coverall
 4. Universal absorbents
 5. Specialty items (as needed based on chemical inventory such as neutralizing agents for acids and bases, solvents, and formaldehyde)
 6. Mercury spill kit for area that have mercury
 7. Disinfectant (biological hazard spill)

VIII. MEDICAL CONSULTATION AND EXAMINATIONS

- A. **Medical Assistance** (CCR Title 8, Section 5191(g)(1))
1. San Diego Miramar College shall provide employees, by way of the district-contracted occupational medical provider, medical consultation, monitoring, or examinations at no charge under the following circumstances:
 - a. When an employee develops signs or symptoms of chemical exposure
 - b. When employer monitoring demonstrates environmental levels that exceed published action levels or exposure limits
 1. Action and exposure levels may be found in references produced by
 - a. Occupational Safety and Health Administration (OSHA)
 - b. National Institute of Occupational Safety and Health (NIOSH)
 - c. American Conference of Governmental Industrial Hygienists (ACGIH).
 2. Exposure levels are typically reported as 8-hour time weighted averages.
 3. Monitoring may be accomplished by
 - a. Air monitoring
 - b. Air sampling
 - c. Personal monitoring devices.
 - c. When an emergency event, such as a leak, spill, release, or explosion, occurs, there is a high likelihood of hazardous exposure.
 2. The employee shall be allowed to attend exposure-related medical appointments during normal work hours without using vacation or sick leave hours.
 3. The supervisor or Dean shall provide the contracted medical provider with the following information prior to the appointment:
 - a. Identity of substances the employee was or may have been exposed to
 - b. Description of the conditions under which the exposure occurred, including any monitoring data
 - c. Signs and symptoms the employee was demonstrating indicated potential chemical exposure.
 4. The healthcare professional shall provide a written opinion that includes
 - a. Any recommended additional medical treatment(s)
 - b. Results of the examination, if requested by the employee
 - c. Existing medical conditions that may increase an employee's risk associated with potential exposures
 - d. A statement that the employee has been informed by the healthcare professional of the results and any conditions that may require additional examinations or treatments.
 - e. Diagnoses unrelated to occupational exposure shall not be included in the written opinion.
 5. An *Injury and Illness Incident and Investigation Report* shall be completed by the supervisor and forwarded to the Risk Management Office and OEHS Coordinator.
 6. A copy of the healthcare provider's opinion shall be forwarded to the Risk Management Office and employee supervisor.

IX. EMERGENCY RESPONSE PROCEDURES

A. Spill Clean-Up Procedures

Spills must only be cleaned up by knowledgeable and experienced employees who have reviewed the SDSs for the spilled chemical(s).

A.1 Minor Spill

A minor spill is when materials are contained within a small area of the lab, preparation area, storage rooms, or adjacent areas. In addition, it does not pose a risk to human safety and health. It can be cleaned up with a spill kit and requires basic PPE, such as gloves, lab coat, and safety goggles.

1. Standard Procedures for handling a minor chemical spill
 - a. Alert people in immediate area of spill
 - b. Shut off equipment, if safe to do so
 - c. Wear standard PPE, including safety goggles, appropriate gloves, and lab coat
 - d. Shut the hood if the spill is inside fume hood.
 - e. Contain the spill with physical barriers
 - f. Clean up the spill using appropriate spill kits absorbent materials (paper towels)

Type of Spill	Neutralizer
Acids Spill	Use sodium bicarbonate or acid neutralizers absorbent for acid spills
Acid chloride spills	Avoid water and sodium bicarbonate. Use dry sand, Oil-Dri absorbent, or equivalent product
Basic Spill	Use citric acid, sodium bisulfate or base neutralizer absorbent for base spills
Alkali Metal Spills	Do NOT use water, smother in dry sand and place in debris in a hood.
Organic and most other spills	Use vermiculite, dry sand, or diatomaceous earth.
Biological (Bacteria, fungi, protozoan, etc.)	Use Disinfectants – see more in the Biohazards Plan.

- g. Disposed of the material in appropriate hazardous waste containers.
 - h. Let everyone know the spill has been cleaned up.
 - i. Decontaminate re-usable supplies used in cleaning up spills (i.e., forceps, dustpan, etc.)

A 1.2 Mercury Spill

Mercury is a toxic heavy metal. It is a universal waste. It is found in a lot of old equipment (thermometer, barometer, car parts manufactured before 2003, fluorenes light bulbs etc.). Mercury spill kits are placed in areas where mercury is present.

1. Standard Procedures for handling a mercury spill:
 - a. Alert people in vicinity of the mercury spill
 - b. Use appropriate PPE (gloves, lab coats, safety goggles)
 - c. Obtain the mercury spill kit
 - d. Clean up the mercury spill using the spill kit and place it in hazardous waste container with label.
 1. Important safety notes: never use a broom or vacuum cleaner to clean up mercury.
 2. Use duct tape and sponges provided in the kit to clean up the spill
 - e. Mercury spills greater than two teaspoons must be reported to the National Response Center (NCR).
 - f. If you have further questions, then please call your local poison control center at 1 (800) 222-1222.

A.2 Major Spill Procedure

A major spill involving many materials or extremely hazardous materials poses a significant risk to health and/or safety, may require emergency personnel's assistance, and can pose fire or explosion hazards. A major spill would require specialized PPE such as respirator and suits based on what the SDS requires.

1. Procedure for handling Major Chemical spill
 - a. Alert people in the area to evacuate; if deemed necessary, pull the fire alarm
 - b. Shut off the appropriate equipment if safe to do so.
 - c. Campus Police (6405 or 619-355-6405) or 911 must be called immediately to request assistance from the local Hazardous Materials Response team or hazardous waste contractor to address the release/spill. Provide the officer the following information:
 1. Your Location (building and room number) and the location of the spill
 2. The nature of emergency (spill, chemical exposure, fire, etc.)
 3. If there is an injury involved, indicate that medical attention is needed
 4. Provide the SDS
 5. How much was spilled
 6. What control measures you have taken
 7. Your name and phone number
 - d. Contact your supervisor and OEHS Coordinator.
 - e. Depending on the amount, areas impacted, and the type of chemical, the Emergency Action Plan may be initiated. Refer to the District's Emergency Action Plan for more information
 - f. Attended to injured or contaminated people and removed them from exposure; help them access the emergency eyewash and/or shower if needed.
 - g. All significant spills or threatened releases of hazardous materials, including oil and biological material, must be immediately reported. The head of facility or the OEHS Coordinator will notify Cal OES State Warning Center (800) 852 - 7550 or (916) 845 – 8911.

B. Chemical Exposure

1. If a person is splashed with chemicals, rinse the area with copious amounts of water.
 - a. For splashes to the eyes and face assist the individual to the eyewash station and flush eyes for fifteen (15) minutes, holding the eyelids open.
 - b. Employees assisting exposed individuals should wear appropriate protective clothing (gloves, goggles, apron) to prevent further contamination.
 - c. For significant body exposures, the individual shall proceed to a safety shower and be doused with water for ten (10) minutes.
 - d. Campus Police (**6405** or **619-355-6405**) or 911 shall be called immediately
 - e. The SDS of the chemical involved shall be provided to the first responders by the supervisor.
2. The Dean or Supervisor will complete and submit an *Injury and Illness Incident and Investigation Report* within 24 hours. If it is a severe injury that results in hospitalization, Cal-OSHA must be notified within 8 hours.
 - a. A review of the incident will be presented to the Safety Committee by the Campus Chemical Hygiene Officer at its next regularly scheduled meeting.
 - b. A copy will be forwarded to the Risk Management Office within twenty-four (24) hours of the spill.
 - c. The Chemical Hygiene Officer will identify any operational or equipment changes or modifications that may prevent any future releases and associated exposures.

C. **Fire and Explosion**

Every science laboratory classroom and industrial laboratory classroom has a fire extinguisher. Fire blankets are available in most of these areas. Employees working in these areas undergo basic fire extinguisher training annually.

1. General guidelines for putting out small fire (no greater than a standard office waste basket)
 - a. Activate the nearest fire alarm and evacuate everyone from the room.
 - b. Obtain a fire extinguisher or fire blanket immediately.
 - c. Fire Extinguisher –PASS
 1. Plug the pin
 2. Aim at the base of the fire
 3. Spray at the base
 4. Sweep side to side to extinguish the flame
 - d. Blanket – throw the blanket on top of the fire
 - e. Campus Police (**6405** or **619-355-6405**) or 911 must be called immediately. Then contact your Supervisor and OEHS Coordinator.
2. Large Fire
 - a. Activate the nearest fire alarm and evacuate everyone from the room.
 - b. Close the door to confine the fire
 - c. Evacuate the building immediately to the evacuation point
 - d. Campus Police (**6405** or **619-355-6405**) or 911 must be called immediately. Then contact your Supervisor and OEHS Coordinator.

D. Emergency Contact:

Emergency Agency	Contact
Campus Police	619-355-6405
Facility	(619) 388-7823 Urgent services: Call (619) 388-6422
OEHS Coordinator Carina Castro	619-388-2634
Risk Management Karen Woods	619-388-6953
San Diego Regional Cal-Osha office	(619) 767-2280
Poison Control	1 (800) 222-1222

X. TRAINING

All employees that handle hazardous chemicals must undergo safety training. Initial training is needed for new employees (e.g., within 30 days (about 4 and a half weeks) from the date of hire) followed by annual refresher training.

A. Supervisors Responsibility:

The SDCCD Injury and Illness Prevention Program (IIPP) outlines the supervisor's responsibility to provide safety training for their employees. Supervisor must do the following:

1. Ensure that all employees complete the required Injury and Illness Prevention training, with new hires completing it within 30 days of their start date.
2. Identify potential hazards to which employees may be exposed in the workplace.
3. Verify that each employee successfully completes the training necessary for their specific job functions.
4. Conduct an annual evaluation of employee safety training as part of the performance appraisal process.
5. Document all safety training sessions attended by employees, including those led by supervisors and OEHS Coordinator.
6. Maintain safety training records for the duration of each employee's employment.

B. OEHS Coordinator Responsibility

1. The OEHS Coordinator is responsible for designing, developing, and coordinating safety training programs, ensuring they align with regulatory requirements and company policies.
2. The OEHS Coordinator offers guidance to supervisors on safety training requirements, regulatory compliance, and best practices. They also assist in resolving any safety-related issues.
3. The OEHS Coordinator works with the district risk management in ensuring that the campus meets all local, state, and federal safety training requirements and stays up-to-date on any changes in regulations.
4. OEHS Training Seminar – The Emergency training sessions are offered by the OEHS Coordinator for faculty and staff. Some of these trainings are coordinated with Campus Police and various departments across campus or outside vendor. These training courses are not required but are highly recommended. The SPCC and CHP seminars are required to meet OSHA compliance.
 - a. CPR and AED certification will be held 1-2 a year or by request
 - b. First Aid and Stop the Bleeding training will be held once a year or by request
 - c. ALICE are coordinated with campus police and are offered upon request.
 - d. CERT, Fire Extinguisher (hands on training), and Emergency Evacuation Chair training will be held once a semester.
 - e. SPCC Plan will be held once a year at department meeting
 - f. Chemical Hygiene Plan seminar will be held once a year or by request

C. Faculty Responsibility

2. The faculty are responsible for giving students laboratory/exercise safety training on the first day of classes and have them sign a safety waiver.
- D. **Laboratory Orientation Training** is conducted the **first day** the employee is working and will be reviewed annually. The training involves going over emergency protocol, emergency equipment, SDS locations, PPE location, etc. to meet state and federal compliance. These are common questions OSHA inspectors would ask of any employee working with hazardous chemicals. Refer to [Appendix E](#) training log example.

E. Keenan Safe College online training:

1. The employee supervisor is responsible for enrolling employees in Keenan Safe College Training and overseeing the management of training schedules. It is recommended that annual training renewals begin in July and be completed by September.
2. Keenan Safe College online training has a training record repository for a history of training.
3. Standard training to handle hazardous chemicals:
 - a. Science Lab Safety (full course)
 - b. Fire Extinguisher Safety (full course)
 - c. Hazard Communication: Right to Understand (full course)
 - d. Chemical Spills Overview (Full Course)
 - e. Personal Protective Equipment (full course)
 - f. Safety Data Sheets (full course)
4. Compress Gas Cylinder - Employees who work with compress gas cylinder must complete gas cylinder training (federal regulation 1910.101) on Keenan Safe College online training.
5. Other training is available on the Keenan Safe College online website are available and will be determined by the supervisor and OEHS Coordinator if employee needs to take them.

F. Specialize Training:

1. Biological hazardous training is required for employees that work with biohazards – see the Biohazards Plan for more information.
2. Auto department and diesel department have additional safety online training by outside vender called S/P2 Online Training that all students and staff are required to take annually.
3. Employee working with refrigerant gas must undergo certification training to meet federal and state regulations
4. Employees who work with overhead cranes must be certified by the National Commission for the Certification of Crane Operators (NCCCO).

5. Employees who work with chemicals listed in [Appendix D](#): Select Substances of Concerns will need to review standard operating procedures for those chemicals and may undergo additional training to meet compliance Cal/OSHA Title 8 regulations.
6. Head of Facilities and OEHS Coordinator Required Training. Completion of Hazardous Waste Generator training is required every 3 years to meet RCRA requirements.
7. The District provides online training seminars in ergonomics

G. Important Contacts

Training	Main Contact	Contact Information
Keenan Safe College	website	https://sdccd-keenan.safecolleges.com/login
Keenan Training Coordinator	Karen Woods Jhelen Ramirez, Professional Development Dept/HR	619-388-6953 kwoods@sdccd.edu profdevelopment@sdccd.edu or 619-388-6373.
Risk Management	Karen Woods	619-388-6953
Emergency Training • CPR/AED Training • First Aid and Stop the Bleeding • ALICE, CERT, RAD • SPCC and CHP	OEHS Coordinator	Email: ccastro@sdccd.edu 619-388-2634

XI. RECORDS

A. The following records shall be retained:

1. Training records shall be retained for five (5) years by employee supervisor. Refer to [Appendix E](#) for training log example.
2. HAZWOPER and DOT training certificates should be retained until the employee separates service with the district.
3. Manifests and records of Universal Waste disposal shall be retained for thirty (30) years
4. Weekly hazardous waste storage area inspections shall be kept for three (3) years
5. Archived chemicals shall be retained until thirty (30) years after the chemical was removed from the inventory (1910.1020; §3204(c)(5)(D)).
6. *Injury Incident and Illness Investigation Reports* shall be kept pursuant to the Worker's Compensation guidelines. "All claim files shall be kept and maintained for a period of five years from the date of injury or from the date on which the last provision of compensation benefits occurred as defined in Labor Code Section 3207, whichever is later." (Cal OSHA **15400.2**)
7. Unless noted above, records for eyewash, safety shower, and fire extinguisher inspections shall be retained on the tag until space is no longer available.
 - a. Tags shall not be removed until all spaces have been filled in.
 - b. If an inspection is missed, the tag shall not be removed to start a new tag.
 - c. The date of the next inspection shall be entered sequentially.
8. Fume hood and Biosafety Cabinet verification records shall be kept for three (3) years
9. Lift and crane certification records must be kept for three (3) years.
10. Refrigerant gas certification 608 and 609 is lifetime license. Certification license should be retained until the employee separates service with the district.

Appendix A: Forklift Operator's Daily Checklist

Date	Truck No.	Building No.	Shift
Internal Combustion	Electric	Hours Meter Start End Total Hours.	
Operator's Signature		Supervisor Signature	

CHECK ANY DEFECTIVE ITEM WITH AN "X" AND GIVE DETAILS BELOW.

ACCELERATOR		HOUR METER
ALARMS		HYDRAULIC CONTROLS
BATTERY CONNECTOR		LIGHTS – HEAD AND TAIL
BATTERY-DISCHARGE INDICATOR		LIGHTS - WARNING
BELTS		MAST
BRAKES-PARKING		OIL LEAKS
BRAKES-SERVICE		OIL PRESSURE
CABLES		OVERHEAD GUARD
ENGINE OIL LEVEL		RADIATOR LEVEL
FORKS		SAFETY EQUIPMENT
FUEL LEVEL		STEERING
GAUGES		TIRES
HORN		UNUSUAL NOISES
HOSES		OTHER _____

DETAILS:

If any defects are identified, submit a work order to the District Service Department. **Do not attempt to repair the forklift independently.** This includes adding any fluids to the engine. For further guidance, please consult your direct supervisor.

Appendix B: Hazardous Waste Storage Area Inspection Checklist

HAZARDOUS WASTE STORAGE AREA INSPECTION CHECKLIST

Business Name: _____ Business Address: _____

Person responsible for weekly container inspections: _____

Month _____ Year _____	Weekly Hazardous Waste Container Inspection				Comments
	Date ____/____/____	Date ____/____/____	Date ____/____/____	Date ____/____/____	
Inspection Item Containers marked properly name/address contents/composit on physical state/hazard properties start date					
Stored 90/180/365 days or less					
No leaks/staining					
Closed tops/bungs					
No dents/corrosion					
Incompatible wastes and materials stored separately					
Aisle space maintained					
Secondary containment liquid free					
Inspector's Initials					
Overall Comments:					

In General:

- Acids must be segregated from ignitables.
- Acids must be segregated from caustics.
- Corrosives should be segregated from flammables.
- Oxidizers should be segregated from EVERYTHING.
- Many corrosives are water-reactive.
- Most organic reactives must be segregated from inorganic reactives (metals).

INCOMPATIBLE WASTES - Some Deadly Combinations -

- Acids + Oil or Grease = FIRE
- Acids + Caustics = HEAT/SPATTERING
- Caustics + Epoxies = EXTREME HEAT
- Chlorine Gas + Acetylene = EXPLOSION
- Flammable Liquids + Hydrogen Peroxide = FIRE/EXPLOSION
- Aluminum Powder + Ammonium Nitrate = FIRE/EXPLOSION
- Sodium Cyanide + Sulfuric Acid = LETHAL GAS
- Ammonia + Bleach = LETHAL GAS

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Appendix C: Special Waste Category Handling Requirements

A. Liquid Paint

1. Unused liquid paint shall be managed either by transporting to a paint recycle center (preferred) or handling as hazardous waste.
2. Paint to be recycled
 - a. Containers must be properly sealed to prevent spillage.
 - b. Liquid paint shall be included in the totals in determining the generator class (large or small).
 - c. Containers must be marked with the date they were designated as waste.
 - d. San Diego Miramar College shall coordinate with the recycle center to determine ability to accept paint from the College and the types of waste paint, including aerosol cans, generated by the College.
3. Paint to be disposed
 - a. Containerize the paint containers by sealing them and placing them into an appropriate and properly labeled hazardous waste container
 - b. The accumulation date shall be when the first paint container is placed in the container.
 - c. Place a hazardous waste label on each container of unused or unwanted liquid paint.
 - d. The total paint volume must be considered during hazardous waste generator classification determination.

B. Dry Paint

1. Dry paint in containers or items contaminated with non-liquid paint may be disposed of in regular solid waste.
2. Under no circumstances can the lid of a container with liquid paint be removed with the intention of allowing the solvent to evaporate off to render the item non-hazardous waste. This is considered treatment which requires a permit.

C. Oily Rags

1. Rags contaminated with oil, gasoline, solvents, or paint may be hazardous if they are saturated to the point of dripping or leave residue on the hands when held. If the rag does not drip or leave a residue, it can be laundered for reuse or disposed of in regular trash.
2. Contaminated rags must be placed in spring loaded metal cans designated for oily rags.
 - a. The lid must remain closed unless rags are being added or removed from container.
 - b. The can must be emptied daily.
 1. Rags must be stored in a closed-top container that is properly labeled as hazardous waste.

2. The container must be labeled "Oily Rags" and no other solid waste may be included in that container.
3. Rags may be laundered or disposed of within the time limits set forth by the generator class of the Facility or College.

D. Used Oil

1. For the purposes of this section, 'used oil' is any refined or synthetic product that has been used and is contaminated with physical (metal shavings) or chemical (water) impurities. Oils include
 - a. Motor oils - Vehicle crankcase, Engine, Transmission, and Gearbox
 - b. Industrial - Hydraulic, Compressor, Turbine, and Bearing
 - c. Other - Transformer, Refrigeration, and Metalworking
2. Used oil is managed as hazardous waste unless it is to be recycled.
3. Used oil shall be placed in appropriate containers and are subject to the container requirements of hazardous waste.
4. In addition to the hazardous waste labeling requirements, the containers must be labeled "Used Oil"
5. Funnels may be used to add material to the container. Unless equipped with a lid, the funnel must be removed and the bung replaced when oil is not being added.
6. Containers receiving used oil shall be placed on drip pads, containment skids, or other means to prevent oil dripping onto the ground and to contain any leaks or spills.
7. Used oil containers shall be removed with other hazardous waste during regularly scheduled pickups.
 - a. If the oil is to be recycled, the containers can be transported by the recycling facility as long as proper paperwork is provided.
 - b. Recycling companies may not generate a *Uniform Manifest* but may instead provide the College with a *Consolidated Manifest* in the form of a receipt.
8. Documents provided by the transporter shall be retained for at least three (3) years.

E. Used Oil Filters (California Health and Safety Code (HSC), chapter 6.5, division 20, article 13 §25250.22, and California Code of Regulations title 22, division 4.5, (22CCR) §66266.130)

1. Used filters can be
 - a. Recycled
 - b. Managed by hazardous waste.
2. Prior to disposal, as much liquid as possible shall be drained out of the filter into a used oil waste receptacle.
 - a. If the filter is equipped with drain plugs, they shall be removed to allow complete emptying of the filter.
 - b. For filters with an anti-drain valve (ADV), you may need to use a manufacture filter crusher or piercing device to fully drain the filter.

- c. Manufactured filter crushers or piercing devices are allowed to facilitate the draining of residual oil. Facility-made crushers or piercers, including hand tools, are strictly forbidden.
- 3. Empty filters are placed in a rigid container clearly labeled "Drained Used Oil Filters."
 - a. The container shall be either metal or plastic.
 - b. The container shall be able to contain any residual oil that leaks from the filters.
 - c. The container shall be marked with
 - 1. Date first filter was placed in container (accumulation start date)
 - 2. College name
 - 3. Contact individual
 - 4. Contact phone number
 - d. If the filters are to be disposed of, the hazardous waste label will contain all of the required information.
 - e. The container shall have an appropriate lid that is in place unless filters are being added or removed.
- 4. The filters must be delivered to the recycling center within one (1) year of the accumulation start date. District employees or contractors, including the hazardous waste disposal contractor, can transport used oil filters to the recycling facility.
- 5. A record of the delivery to the recycle center must be obtained and kept for three (3) years. The record must include
 - a. College name, address, and contact phone number
 - b. Transporter's name, address, and phone number
 - c. Name, address, and phone number of receiving facility
 - d. Quantity and capacity of the containers being transported
 - e. Date filters transported.

F. Empty Containers

- 1. Empty containers that previously held hazardous materials or hazardous waste are themselves considered hazardous unless they are 'California empty.'
 - a. All liquid contents must be transferred from the container to the point where inversion will not produce a constant dripping.
 - b. Solid material must be scraped from container.
 - c. Containers that held extremely hazardous waste must be triple rinsed with an appropriate solvent. The rinses must be captured and disposed of as hazardous waste.
- 2. These containers must be properly managed.
 - a. For containers larger than five (5) gallons, the container must be legibly and obviously labeled with the word 'empty'
 - 1. On the lid
 - 2. On the side
 - 3. Original labels to identify previous contents must be retained.
 - 4. The date the contents were removed and the container designated as waste must be legibly and obviously marked on the container.
 - b. Containers must be disposed of within one (1) year of being emptied.

1. Containers less than five (5) gallons in size may be disposed of in regular trash.
2. Containers more than five (5) gallons in size must be recycled, reconditioned, reused, or disposed of as hazardous waste. Records of the facility the container was shipped to, including name, address, mailing address, and phone number must be kept for three (3) years.
- c. The lid or bungs must be securely fastened at all times.
3. Containers that are to be reused for waste once their contents have been removed shall abide by the following
 - a. Containers may be reused but only with waste that is compatible with the previous contents.
 - b. Containers that are intended to be used as waste containers shall be marked 'available for reuse.'

G. Pesticides

1. Every effort should be made to use as much of the pesticide as possible.
2. If a product is no longer used, the entire container shall be placed in the hazardous waste storage area and properly labeled as a hazardous waste.
3. If most of the product has been used, the container can be triple rinsed with water and disposed of as solid waste.
 - a. Residual products can be transferred to other containers of the same product for use.
 - b. The rinsates can be captured and used for their original purpose or disposed of as hazardous waste.

H. Printer ink and toner

1. Empty printer ink and toner can be recycled through off-campus resources. Most printers on campus are HP, which provides pre-paid mailing label to ship the cartridge to be recycled.
2. Any printer ink and toner that is made with hazardous materials shall be placed in the hazardous waste container.
3. Empty printer ink and toner cartridge will be taken to the stockroom to be recycled within 90 days.
4. If toner cartridges are not empty, they will be managed through hazardous waste disposal.

Appendix D: Select Substances of Concern

Miramar College utilizes various hazardous materials in its laboratory courses and exercises. Among these, substances of particular concern include carcinogens, reproductive toxins, and chemicals with high acute toxicity, all of which are subject to specific safety guidelines and regulations to ensure the protection of users. Proper handling and stringent controls of these materials are crucial to safeguarding both personnel and the environment from potential contamination, as well as ensuring compliance with Title 8 of the California Code of Regulations, Section 5209.

 Pictogram for Carcinogen and Reproductive Toxins	 Pictogram for Acute Toxicity (Poison)
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A. Definition

1. **Reproductive Toxins** are chemicals that affect the reproductive capabilities including chromosomal damage (mutations) and adverse effects on fetal development (teratogenesis). In California, a list of reproductive toxins and other chemicals that are regulated under the Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986) can be found on the California Office of Environmental Health Hazard Assessment (OEHHA) website.
2. **Acute Toxins** are chemicals that pose a high level of immediate health risks to individuals. They can be defined as:
 - a. A chemical with a median lethal dose (LD50) of 50 mg or less per Kg of body weight when administered orally to albino rats weighing between 200 and 300 gm each. For example, sodium cyanide has an oral LD50 of around 5 mg/kg in rats, which means that a very small amount of this substance is enough to be lethal to 50% of a population of rats. This makes cyanide a highly toxic substance, emphasizing the importance of strict safety precautions when handling it.
 - b. A chemical with a median lethal dose (LD50) of 200 mg or less per Kg of body weight when administered by continuous contact for 24 hours (or less if death occurs within 24 hours) with the bare skin of albino rabbits weighing between 2 and 3 Kg each. These chemicals are often pesticides, herbicides, insecticides, and certain industrial chemicals that are designed to be potent in small quantities. An example would be formaldehyde. It is important to wear proper protective gloves when handling these chemicals.
 - c. A chemical that has median lethal concentrations (LC50) in air of 5000 ppm by volume or less of gas or vapor, or 50 mg per liter or less of mist, fume, or dust,

when administered by continuous inhalation for 1 hour (or less if death occurs within 1 hour) to albino rats weighing between 200 and 300 gm each. Hydrogen sulfide is a highly toxic gas with a relatively low LC50 value. For example, the LC50 for hydrogen sulfide in rats is typically reported to be around 300 ppm for a 1-hour exposure, which is well below the 5000-ppm threshold. This means that a concentration as low as 300 ppm in the air could be lethal to 50% of the rats exposed to it in one hour, demonstrating its high toxicity when inhaled.

3. **Selected Carcinogens** are a category of chemicals where the available evidence strongly indicates that the substances cause cancer. They can meet one of the following criteria:
 - a. It is regulated by Cal/OSHA as a carcinogen (Title 8, CCR section 5209)
 - b. It is listed under the category "known to be carcinogens" in the annual report by the National Toxicology Program (NTP)
 - c. It is listed under Group 1 - "carcinogenic to humans" - by the International Agency for Research on Cancer (IARC)
 - d. It is listed in either Group 2A or 2B by the IARC or under the category "reasonably anticipated to be carcinogens" by NTP and causes statistically significant tumor incidence in experimental animals.
4. **Regulated Carcinogens** are carcinogens that are regulated by Cal/OSHA that require additional requirements associated with them that are not covered under this procedure. The use of these agents may require personal exposure sampling based on usage. In addition, we are required to report to Cal/OSHA our plan and method of using these chemicals. These are the following chemicals:

2-Acetylaminofluorene	Acrylonitrile	4-Aminodiphenyl
Arsenic, inorganic	Asbestos	Benzene
Benzidine (and its salts)	1,3-Butadiene	Cadmium
Bis-Chloromethyl ether	Chromium (VI)	Coke Oven Emissions
1,2 Dibromo-3-chloropropane (DBCP)	3,3'-Dichlorobenzidine (and its salts)	4-Dimethylaminoazobenzene
Ethylene oxide	Ethylene Dibromide (EDB)	Ethyleneimine
Formaldehyde	Lead	Methylene Chloride
Methyl Chloromethyl ether	4,40-Methylenebis (2-chloroaniline)	Methylenedianiline
Alpha-Naphthylamine	Beta-naphthylamine	4-nitrobiphenyl
N-Nitrosodimethylamine	Beta-Propiolactone	Vinyl Chloride

B. Documentation:

1. Standard Operating Procedures

- a. An extremely hazardous substance requires detailed Standard Operating Procedures (SOPs) to be written, outlining specific safety measures and protocols for handling, storing, and using the substance to minimize the risk of accidents and exposure to workers and students.
- b. SOPs are created by the department chair, departmental staff, and the OEHS Coordinator.

C. Special Handling and Storage Requirements

1. Handling and labeling:
 - a. Employees must be trained before handling any particular hazardous chemicals.
 - b. Employees are required to wear PPE and implement engineering controls and administrative controls when working with these chemicals. Refer to section 6 A, B and C.
 - c. The work surface should be made of stainless steel, plastic trays, dry absorbent plastic back paper, chemically resistant epoxy surfaces, or other impervious materials.
 - d. Pictograms of health hazardous must be placed on bottles of these particular hazardous chemicals.
 - e. Areas where carcinogens, acute toxicity, and reproductive toxin are stored must be labeled with warning signs as appropriate for the specific chemical hazard.
 1. "Danger, Cancer Hazard"
 2. "Danger, Reproductive Toxin"
 3. "Danger, Acute Toxin"
2. Secondary Containment Requirements
 - a. Particularly hazardous chemicals must be stored in a manner that will minimize the risk of accidental release, capped tightly and be maintained in chemical resistant secondary containment.
 - b. Flinn Saf-Store Cans is great option in storing hazardous chemicals
 - c. Segregate the chemicals from incompatible materials
 - d. Additional requirements for the safe storage of a specific chemical may be found in the manufacture SDS.
3. Transporting:
 - a. When transporting these particular hazardous chemicals, the container should be protected from breakage by using a bottle carrier or other effective containment.
4. Decontamination:
 - a. When finished using the particular hazardous chemicals, laboratory work surface area, equipment, and PPE must be decontaminated.
 - b. Decontamination must be carried out in a fume hood.
 - c. After finishing decontamination and removing gloves, wash hands and arms with soap and water.
5. Medical Surveillance
 - a. If workers are exposed to known or suspected particular above the action level or PEL, medical surveillance is required. This includes regular health screenings and medical exams to detect cancer or related health effects. Refer to Section 10 of this plan.
 - b. Supervisors will fill out *Injury Incident and Illness Investigation Reports* and work comps forms with their employees. These forms will be given to the OEHS Coordinator.
6. Notification:

- a. Before purchasing any new regulated carcinogens, reproductive toxins, and acute toxin, the OEHS Coordinator and head of facility must be contacted.
- b. OEHS Coordinator and head of facility is responsible for reporting to federal, state, and local agencies of regulated carcinogens.

Appendix E: Example of a Training Log

Name:	Position:		
Department:	Supervisor:		
Date:			
Item	Required		Date
	Yes	No	Completed
Laboratory orientation			
Emergency Evacuation routes and indoor and outdoor emergency assembly points			
How to report and incident or accident including exposure			
Location of safety showers and eyewash station			
Location of fire extinguishers and closest fire alarm pull station			
First aid kits			
Location of all laboratory spill kits in their area			
Access to Safety Data Sheets (SDS)			
Emergency shutoffs for laboratory equipment			
Review compressed gas safety training			
Lab-specific risk assessment, pathogen safety data sheets and/or work plans for hazardous materials equipment or processes			
Required PPE for lab including use and limitations			
Laboratory hazardous waste management protocols			
Review of Safety Plans			
Injury Illness Prevention Program (IIPP) Plan			
Chemical Hygiene Plan			
Biohazards Plan			
Respiratory Protection Plan			
Vehicle Safety Plan			
Keenan Safe College Online Training			
Science Lab Safety (full course)			
Fire Extinguisher Safety (full course)			
Hazard Communication: Right to Understand (full course)			
Chemical Spills Overview (Full Course)			
Personal Protective Equipment (full course)			
Safety Data Sheets (full course)			
Specialize Training			
Compressed Gas Cylinder?			
BSL 2 Training?			
Ergonomic Training? (lifting object/ stacking object)?			