

Potential Hazard Review

Chemical Hazards

- Inhalation: Inflammation of the lungs, respiratory failure, death
- Skin contact: Burns, allergic reaction, dermatitis
- Absorption: Irritation, overexposure
- Injection: Overexposure
- Ingestion: Overexposure

Physical Hazards

- Fire/explosion: Burns, death

Related Safe Work Practices

- Asbestos Hazard Awareness
- Fire Safety
- Indoor Air Quality
- Lead
- Site Emergency Action Plan

Authority

- CCR Title 8 Section 5164, 5194
- California Universal Waste Employee Training Rule 66273.16

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Hazardous Substances covers chemicals (hazard communication), materials, transportation, and waste. It does not include building materials-related hazardous substances including asbestos, lead, or pressure treated lumber. Except for pressure treated lumber, they have their own Safe Work Practices (SWPs; see the Asbestos Hazard Awareness and Lead SWPs). If you come across either material in a project, consult the appropriate SWP for advice on how to safely conduct and complete the project.

This SWP is organized in 6 sections:

A. Permits

- B. Purchase Approval
- C. Use
- D. Storage
- E. Waste
- F. Spills

This SWP is dedicated to helping you avoid an injury or illness from known hazards. You are advised to follow these recommendations, read and follow this SWP and any related SWPs, complete any required or recommended training, and to obtain advice from a Qualified Person if you have any questions.

A Qualified Person is a person **designated** by the employer; and by reason of **training**, experience, or instruction who has demonstrated the ability to perform safely all assigned duties; and, when required is properly licensed in accordance with federal, state, or local laws and regulations.

All tasks require that you:

- Use the equipment in accordance with the guidelines set forth by the manufacturer. This includes following all signs and labels, and reviewing any manufacturer's operating manuals.
 - If the instructions provided in the operating manual conflict with this SWP, then follow the instructions in the manual. The manufacturer's instructions prevail over this SWP.
- Review the safety data sheets (SDSs) for each chemical.
- Be trained on this SWP and those listed above as related. Training on SWPs must be completed before initial assignment. It is also recommended that you complete refresher training every two years.

A. PERMITS

1. Hazardous substances are regulated by many agencies:
 - a. The San Francisco Department of Public Health's Hazardous Materials Unified Program Agency (HMUPA) regulates the use of hazardous materials and waste in San Francisco. Tuolumne County regulates Camp Mather, and San Mateo County regulates Sharp Park.
 - b. Cal OSHA inspects workplaces and enforces laws to protect the health and safety of workers in California.
 - c. Cal EPA regulates and administers the state's environmental protection programs, and fulfills hazardous waste cleanup.
2. Permits may be needed for the use or storage of hazardous materials. If RPD generates hazardous waste at a site, or handles, stores or uses hazardous materials in quantities exceeding specified thresholds, that site is required to comply with

several requirements for notification, registration and permitting. A HMUPA Certificate of Registration is required if:

- a. At any one time during the year, you were to add up the volume of all the **hazardous liquids** in containers with a capacity equal to or greater than 1 gallon and the total volume is greater than or equal to 55 gallons; or
 - b. At any one time during the year, you were to add up the volume of all the **hazardous solids** in containers with a capacity equal to or greater than 25 pounds and the total weight is greater than or equal to 500 pounds; or
 - c. At any one time during the year, you were to add up the volume of all the **compressed gases** in containers with a capacity equal to or greater than 10 cubic feet and the total volume is greater than 200 cubic feet; or
 - d. At any one time during the year, you store a single hazardous material or a mixture containing a hazardous material (including all container sizes) in amounts greater than or equal to either 55 gallons of liquids, 500 pounds of solids, or 200 cubic feet of compressed gases; or
 - e. The site generates *any* amount of **hazardous waste**. One exception is “silver-only” hazardous waste. If less than 100 kilograms per month of silver waste is generated, then that site may be exempted.
3. If you think you might need a HMUPA operating permit based on the above trigger amounts, first check the site records to see if a permit already exists. If not, you will need to apply for one. You may do so by contacting the HMUPA program at 415-252-3900. EHS can also give you advice on how to proceed.
 4. Copies of HMUPA operating permits and applications must be provided to EHS by the site manager.

B. PURCHASE APPROVAL

5. EHS approval is required in order to purchase a chemically-based product. You may not purchase a chemical without going through this process.
 - a. Approval is based upon use, and not upon who is purchasing the product. So, if the use is consistent with the original approval, you will not have to get approval every time you re-purchase a product, or if you want to buy a product previously approved for someone else.
 - b. A [database](#) of the approved products is available for all staff to view. This database can be accessed through the RPD Intranet site by opening your web browser, then typing ‘sfrecpark’ in the address bar. Click on the ‘Health and Safety’ drop down menu, and select ‘Safety Data Sheets (SDSs)’. This database is available to Accounting/Purchasing staff as well and will be used by them to determine if prior approval has been given to a product when they receive a requisition. If you are unsure if a product you are purchasing has been

previously approved, check the database first. Otherwise, you may ask Purchasing or EHS staff for help.

- c. An [SDS Approval Request Form](#) has been developed to help assure a speedy approval of your product. If you want to purchase a product that has not been previously approved, you must submit the SDS sheet along with a completed SDS Approval Request Form to EHS.

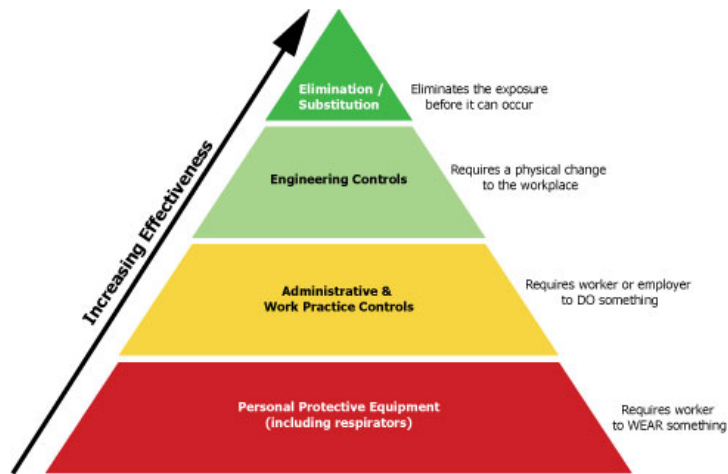
C. USE

6. Training on hazardous substances must be provided to employees upon initial assignment, and whenever a new chemical hazard is introduced into their work area.
 - a. Information and training may relate to general classes of hazardous substances and related to reasonably foreseeable exposures of the job.
 - b. Chemical-specific information must always be available through labels and SDSs
7. Training shall consist of at least the following topics (and information is available on the SDSs):
 - a. Any operations in the work area where hazardous substances are present.
 - b. The location and availability of the SDSs.
 - c. The methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (visual appearance or odor of hazardous chemicals when being released).
 - d. The physical or health hazards of the chemicals in the work area, and the measures employees can take to protect themselves from these hazards, including specific procedures to protect employees from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used.
 - e. How employees can obtain and use the appropriate hazard information.
 - f. The employee's right:
 - i. To personally receive information regarding hazardous chemicals to which they may be exposed.
 - ii. For their physician or collective bargaining agent to receive information regarding hazardous chemicals to which the employee may be exposed.
8. There are a number of carcinogenic substances which are regulated specially by Cal OSHA (e.g. training, work practices). If you are working with products that have any of these substances in them, please contact EHS for further assistance:
 - a. Acrylonitrile
 - b. Benzene
 - c. 1,3 Butadiene
 - d. Cadmium
 - e. 1,2 Dibromo-3-Chloropropane (DBCP)

- f. Ethylene Dibromide (EDB)
 - g. Ethylene Oxide
 - h. Formaldehyde
 - i. Inorganic Arsenic
 - j. 4,4-Methylenebis (2-Chloroaniline) MBOCA
 - k. Methylene Chloride
 - l. Methylenedianiline
 - m. Vinyl Chloride
9. Whenever a new or revised SDS is received, such information shall be provided to employees on a timely basis not to exceed 30 days after receipt, if the new information indicates significantly increased risks to, or measures necessary to protect, employee health as compared to those stated on a SDS previously provided
10. Be familiar with the SDS for a product prior to using it. Supervisors shall have access
11. providing material-specific training in the safe use of those products to each employee prior to assigning them to use it.
12. The SDS sections are as follows.
- a. IDENTIFICATION: Identifies the chemical/product and recommended uses; includes the name and contact information of the responsible party.
 - b. HAZARD(S) IDENTIFICATION: Identifies the hazards of the chemical and the appropriate warning information. This includes the hazard classification of the material, the signal word, hazard statements, the pictograms associated with the material, and precautionary statements.
 - c. COMPOSITION/INFORMATION ON INGREDIENTS: Identifies ingredients contained in the product including chemical name, impurities and stabilizing additives, and concentration.
 - d. FIRST-AID MEASURES: Describes the initial care that should be given by untrained first responders to an individual who has been exposed to the chemical; this includes routes of exposure, description of symptoms, and recommendations for immediate medical care and special treatment.
 - e. FIRE-FIGHTING MEASURES: Provides recommendations for fighting a fire caused by the chemical; this includes recommendations of suitable extinguishing equipment, advice on specific hazards that develop from the chemical during the fire, and recommendations on protective equipment for firefighters.
 - f. ACCIDENTIAL RELEASE MEASURES: Provides recommendations on the appropriate response to spills, leaks, or releases; includes recommendations for personal precautions, emergency procedures, methods and materials used for containment, and cleanup procedures.
 - g. HANDLING AND STORAGE: Provides guidance on the safe handling practices and conditions for the safe storage of chemicals; this includes precautions for safe handling and storage.

- h. **EXPOSURE CONTROLS/PERSONAL PROTECTION:** Indicates the exposure limits, engineering controls, and personal protective measures that are used to minimize worker exposure; this consists of exposure limits set by OSHA and other bodies, appropriate engineering controls, recommendation for personal protective measures, and any special requirements for personal protective equipment.
 - i. **PHYSICAL AND CHEMICAL PROPERTIES:** Identifies physical and chemical properties associated with the substance or mixture; this includes (but is not limited to) appearance, upper/lower flammability or explosive limits, odor, vapor pressure, pH, etc.
 - j. **STABILITY AND REACTIVITY:** Describes the reactivity hazards of the chemical and the chemical stability information; this includes (but is not limited to) test data for chemicals, indication of whether the chemical is unstable, a description of stabilizers, indication of the possibility of hazardous reactions, etc.
 - k. **TOXICOLOGICAL INFORMATION:** Identifies the toxicological and health effects information (or indicates that such data are not available); this consists of information on the likely routes of exposure, description of the effects of short and long-term exposure, the numerical measures of toxicity, and a description of the symptoms.
 - l. **ECOLOGICAL INFORMATION:** Provides information to evaluate the environmental impact of chemicals; this includes data from toxicity tests, information on the potential for environmental degradation, the potential for the chemical to move from soil to groundwater, and more.
 - m. **DISPOSAL CONSIDERATIONS:** Provides guidance on proper disposal practices, recycling or reclamation of the chemical(s), and safe handling practices; this includes description of the appropriate disposal containers to use, recommendations of the appropriate disposal methods to use, and more.
 - n. **TRANSPORT INFORMATION:** Provides guidance on classification information for shipping and transporting of hazardous chemicals by road, air, rail, or sea; this includes the UN number, the UN proper shipping name, transport hazard class(es), and more.
 - o. **REGULATORY INFORMATION:** Identifies the health, safety, and environmental regulations specific for the product that is not indicated anywhere else on the SDS; this includes any national and/or regional regulatory information of the chemical or mixtures.
 - p. **OTHER INFORMATION:** Indicates when the SDS was prepared or when the last known revision was made.
 - q. A description, in lay terms, on either a separate sheet or with the body of the information specified in this section, of the specific potential health risks posed by the hazardous chemical intended to alert any person reading the information.
10. Use products as directed by the manufacturer, as listed on the label or SDS. Stronger mixtures are not necessarily better and may be hazardous.

11. To minimize exposure to chemical hazards, a hierarchy of controls is used as a means of determining how to implement feasible and effective controls.



- Elimination or substitution with a safer product is the most desirable control.
- Engineering controls (physical changes to the workplace which eliminates or reduces the hazard) is the next preferable (e.g. isolation, use of ventilation).
- Administrative or work practice controls (establishing efficient processes or procedures) may be appropriate in some cases where engineering controls cannot be implemented or when different procedures are needed after implementation of the new engineering controls (e.g. rotation of jobs).
- Personal protective equipment is the least desirable but may still be effective.










12. Anyone using a chemical around you must inform you of that use. Take responsibility to ask what chemical is being used if you have not been provided that information. You may also request to see the SDS for that product.

13. If you use a chemical in an area where an employee or the public may be present, ensure that use of that chemical does not adversely impact those people by:

- Notifying staff of the use of the chemical.
- Provide the SDS if asked for it.
- Perform work during non-occupied hours whenever possible.
- If work cannot be performed during non-occupied hours, then establish appropriate safeguards, such as canceling programs or establishing effective controls to prevent airborne migration of the chemical. If uncertain about what should be done, contact EHS for advice and assistance.

D. STORAGE

13. Hazardous material containers must be labeled, tagged, or marked. These labels must:
- Be written legibly.
 - Be written in English.
 - Be easily seen on container.
 - Provide the name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.
 - Provide the product identifier, which identifies the hazardous chemical. This can be the chemical name, code number, or batch number.
 - Provide signal words that indicate the relative severity of the hazard. These two words are “Danger” and “Warning”.
 - Provide hazard statements, which describe the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.
 - Provide precautionary statements, which describe recommended measures that should be taken to minimize or prevent adverse effects from exposure to the hazardous chemical or improper storage or handling. There are four types of precautionary statements: prevention (to minimize exposure), response (in case of accidental spillage or exposure emergency response, and first aid), storage, and disposal.
 - Provide a pictogram that identifies the hazard category (ie. a diamond shape with a symbol inside that represents a specific hazard category). To identify hazardous materials, look for the following pictograms:

<p>Health Hazard</p>  <ul style="list-style-type: none"> ▪ Carcinogen ▪ Mutagenicity ▪ Reproductive Toxicity ▪ Respiratory Sensitizer ▪ Target Organ Toxicity ▪ Aspiration Toxicity 	<p>Flame</p>  <ul style="list-style-type: none"> ▪ Flammables ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Self-Reactives ▪ Organic Peroxides 	<p>Exclamation Mark</p>  <ul style="list-style-type: none"> ▪ Irritant (skin and eye) ▪ Skin Sensitizer ▪ Acute Toxicity ▪ Narcotic Effects ▪ Respiratory Tract Irritant ▪ Hazardous to Ozone Layer (Non-Mandatory)
<p>Gas Cylinder</p>  <ul style="list-style-type: none"> ▪ Gases Under Pressure 	<p>Corrosion</p>  <ul style="list-style-type: none"> ▪ Skin Corrosion/Burns ▪ Eye Damage ▪ Corrosive to Metals 	<p>Exploding Bomb</p>  <ul style="list-style-type: none"> ▪ Explosives ▪ Self-Reactives ▪ Organic Peroxides
<p>Flame Over Circle</p>  <ul style="list-style-type: none"> ▪ Oxidizers 	<p>Environment (Non-Mandatory)</p>  <ul style="list-style-type: none"> ▪ Aquatic Toxicity 	<p>Skull and Crossbones</p>  <ul style="list-style-type: none"> ▪ Acute Toxicity (fatal or toxic)

Source: "Side-by-Side Comparison of OSHA's Existing Hazard Communication Standard (HCS 1994) vs. the Revised Hazard Communication Standard (HCS 2012)", Occupational Safety and Health Administration, US Department of Labor, <https://www.osha.gov/Publications/OSHA3636.pdf>

- j. Provide any supplementary information that the label producer deems helpful.
14. Use original containers of materials whenever possible as they have the proper label.
 - a. If secondary containers must be used, they must also be labeled as per the regulations. As labeling requirements are extensive, this is why we recommend use of original containers.
 - b. If you must use a secondary container, you must create a label. Your label must contain the information specified in items 13 (a) through (i). If you can safely do so, photocopying or taking a picture of the original container label, printing it, and taping or gluing it to the secondary container may be a good way to ensure your label complies with each of the label requirements.
 - c. Exemptions:
 - Immediate and Individual Use. A portable container into which hazardous chemicals are transferred from labeled containers, and which are intended only for the immediate use of the employee who performs the transfer is exempt from the labeling requirements listed in 14. a. and b.
 - Stationary Process Containers. Use of signs, placards, process sheets, batch tickets, operating procedures or other written plan may be developed in some cases. See EHS for assistance.
 15. Labels are not to be removed, altered or obscured. Re-label containers whenever labels are damaged or defaced.
 16. Incompatible substances shall be separated from each other in storage by distance, or by partitions. See the SDS for specific storage instructions for each substance.
 17. Hazardous substances shall be stored in containers which are chemically inert to and appropriate for the type and quantity of the hazardous substance.
 18. Hazardous substances shall not be stored in such locations or manner as to result in physical damage to, or deterioration of, the container (e.g. where they might be exposed to heat).
 19. Containers of substances which give off toxic, poisonous, corrosive, asphyxiant, suffocant, or anesthetic fumes, gases, or vapors in hazardous amounts shall not be stored locations where it could be reasonably anticipated that employees would be exposed. This does not apply to small quantities of such materials kept in closed containers.

E. WASTE

20. Ensure that you are familiar with the use, inventory, and types of hazardous wastes generated at your site, section or area, if any.
21. Do not dispose hazardous waste in the trash.
22. Store waste in appropriate storage containers. Refer to the SDS for additional information. Ensure that a label identifies the location of the waste and when it was generated.
23. Recyclable items:
 - a. Small batteries, including alkaline and nickel-cadmium. To order battery recycling bins, contact the Department of the Environment at 415-355-3700 or visit sfenvironment.org.
 - b. Fluorescent light bulbs/tubes should be collected in their original box, if possible. These should be placed in the hazardous waste area in the Maintenance Yard for pick up.
24. Do not re-use hazardous waste containers unless you will re-use it for the same product. Empty containers may still contain residues which may be harmful if mixed with other chemicals.
25. Contact your supervisor or EHS if you have questions about storing and disposing waste properly, or if your not sure whether the waste you are handling is identified as being hazardous or not.
26. If you find abandoned hazardous waste (motor oil, paint, car batteries, or other labeled or unlabeled waste), you may bring it to the Structural Maintenance Yard hazardous waste facility for disposal.
 - a. You must have a copy of the [Hazardous Waste Transporter Registration](#) from the Department of Toxic Substances in the glove box of your vehicle, to legally transport the hazardous waste. This is available on the EHS Intranet site.
 - b. If you have a large amount of hazardous waste, you may call the San Francisco Public Health Department's Hazardous Waste program at 252-3800 to come pick up the waste for you.

F. SPILLS

27. If a hazardous substance is spilled, use spill clean up procedures as prescribed in the SDS in conjunction with the Department's Site Emergency Action Plan (SEAP) SWP.

For any questions, please contact EHS at 415-831-2780.

References:

1. "Guide to the California Hazard Communication Regulation", Cal-OSHA, Published in 2000.
2. "Managing Universal Waste in California" Fact Sheet, California EPA, July 2008.
3. "10 Tips on Safe Cleaning for Custodians", San Francisco Department of the Environment, www.sfenvironment.org.
4. 29 CFR 1910.1200(g), Occupational Safety & Health Administration, https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=standards&p_id=10099
5. 29 CFR 1910.1200, Appendix D, Occupational Safety & Health Administration, https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARD&p_id=10103
6. "Hazard Communication Standard: Labels and Pictograms", Occupational Safety and Health Administration, US Department of Labor, <https://www.osha.gov/Publications/OSHA3636.pdf>
7. "OSHA Brief, Hazard Communication Standard: Safety Data Sheets," Occupational Safety and Health Administration, US Department of Labor, <https://www.osha.gov/Publications/OSHA3514.html>
8. "Hazardous Materials Frequently Asked Questions," San Francisco Department of Public Health, City and County of San Francisco, May 2012. <http://www.sfdph.org/dph/files/EHSdocs/ehsHMUPAdocs/HazardousMaterialsFAQ.pdf>
9. "Hazardous Waste Frequently Asked Questions," San Francisco Department of Public Health, City and County of San Francisco, May 2012. <http://www.sfdph.org/dph/files/EHSdocs/ehsHMUPAdocs/HazardousWasteFAQ.pdf>
10. "Fact Sheet: Onsite Tiered Permitting: Changes in Regulation of Silver Wastes," California Environmental Protection Agency, Department of Toxic Substances Control, January 2000. <http://www.dtsc.ca.gov/HazardousWaste/upload/Onsite-Tiered-Permitting-Changes-in-Regulation-of-Silver-Wastes-SB-2111.pdf>

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