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*Employee
Responsibilities*

All employees must adhere to applicable laws and regulations concerning the acquisition, use, storage, labeling, and disposal of hazardous materials. EHS/RMS (786-1279 or <http://www.uaa.alaska.edu/EHSRMS/ehspersonnel.cfm>) is available for consultation on hazardous material management.

*Acquisition
Responsibilities*

Department heads and principal investigators have the responsibility to ensure that:

- All hazardous materials are ordered under the proper purchasing object code (4455).
- There is a legitimate need for the ordering the hazardous material
- A less hazardous material cannot be substituted
- Order quantities that are needed and will not result in a surplus of material when the job is completed.
- Hazardous material stockpiles will not exceed applicable fire or storage code limitations.
- Identify the volume of hazardous waste generated from this material and budget for its disposal.

To help assure proper hazardous material management, UAA Procurement and EHS/RMS monitors and coordinates all hazardous or potentially hazardous material requisitions. **With few exceptions, hazardous materials cannot be ordered using the UA Procard (Mastercard) system.**

*P-Listed
Compound
Control*

Because of the highly toxic nature of some chemicals and restrictions on UAA's Conditionally Exempt Small Quantity Generator Status, all P-listed items found on the EPA P-List must be reviewed by EHS/RMS prior to purchasing. Employees should be prepared to justify the need for

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the listed compounds and provide procedures to assure that the compounds can be safely and securely stored on site. In addition, procedures must be developed to safely use the compound. Evidence of end process detoxification or total consumption of the listed compound must be provided prior to purchasing listed compounds. The P-List can be found in

<http://ehsrms.uaa.alaska.edu/CMS/Laboratory/ChemList/EPA%20P-List.pdf>

Storage

All hazardous materials must be stored in approved containers, cabinets, and storage areas. Containers, cabinets, and storage areas will have proper labeling. Materials must not be transferred to unapproved, unlabeled containers, except for actual use or limited lab work. Safe procedures will be used for transferring materials from bulk (spill protection, ventilation, grounding, etc.). The department head should verify proper storage is available prior to ordering a hazardous material.

UAA has the responsibility for complying with the reporting requirements of the Superfund Amendment and Reauthorization Act (SARA Title III). EHS/RMS will coordinate and assist with these reporting requirements and may request information from departments when completing the required reports.

Departments should keep accurate inventories of hazardous materials to assist UAA EHS/RMS for the completion of the annual CRTK (Community Right To Know) program that is submitted to the local fire department and the State of Alaska. Upon request, departments should be able to supply the location and quantities of all stored hazardous materials. The Chemical Hygiene Officer serves as the archiving agent at UAA.

Chemical Emergencies

The University will rely on local available state, municipal, or private emergency services to contain spills or leaks which progress beyond the ability of department staff to safely control. EHS/RMS (786-1279 or <http://www.uaa.alaska.edu/EHSRMS/ehspersonnel.cfm>) and or Facilities

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Project Services administer an Emergency Hazardous Material Incident contract to deal with these matters.

*Hazardous
Waste
Disposal*

UAA is classified as a Conditionally Exempt Small Quantity Generator (CESQG). With proper management, the Anchorage campus can retain this classification and ability to economically dispose of wastes at Municipality of Anchorage Hiland Road Hazardous Waste Facility. The University is required to comply with federal standards promulgated under the Resource Conservation and Recovery Act (RCRA) and other regulations. These regulations require documentation of the transfer of hazardous waste from the point of generation to final disposal.

To reduce the risks and costs associated with hazardous material management and disposal, it is the policy of this university to reduce the amount of hazardous waste generated by employing waste minimization principles. EHS/RMS staff plays a critical role in coordinating the following activities:

1. **Strict procurement and inventory control.**
2. **Interdepartmental exchanges of surplus materials.**
3. **Department level disposal by approved methods for certain hazardous materials, including evaporation, neutralization, etc. as these procedures are incorporated into experimental designs.**

Recognizing that even with maximum waste minimization in effect, there will always be some hazardous waste in need of management and formal, external disposal. It will be the responsibility of department heads and principal investigators to budget for the generation of hazardous waste in their areas, identify the hazardous waste generated, prepare it for shipment, and notify EHS/RMS (786-1279 or <http://www.uaa.alaska.edu/EHSRMS/ehspersonnel.cfm>) that waste is ready for pick-up.

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EHS/RMS will be notified at the Anchorage campus that waste is ready for pick up and disposal.

Extended UAA campuses must make their own arrangements for hazardous chemical and petroleum waste disposal. These arrangements must be in accordance with all federal, state, and local laws. EHS/RMS will provide advice and assistance upon request and will periodically review compliance with procedures.

Disposal Guidelines

ALL HAZARDOUS WASTE DISPOSAL ACTIVITIES MUST BE COORDINATED THROUGH EHS (786-1279) IN ANCHORAGE.

Departments and employees are prohibited from circumventing this procedure by falsely claiming any UAA hazardous or non-hazardous waste as being generated by an individual or household.

An individual waste stream generated from a laboratory procedure should not be combined with other chemical wastes. The fewer the number of chemicals associated with a waste, the more economical the disposal.

Flammable Solvents—Flammable solvents will be picked up by EHS/RMS. Disposal of solvents to the sanitary sewer is not permitted.

Halogenated Solvents—Halogenated solvents must not be combined with flammable non-halogenated solvents. Examples of halogenated solvents include methylene chloride, chloroform, and carbon tetrachloride.

Acids and Bases—Concentrated acids and bases are picked up by EHS/RMS. Diluted acids with a pH of greater than 5 can be discharged to the sanitary sewer.

Oils—Only trace quantities of oils associated with cleaning and washing operations should be released to the sanitary sewer. Oil wastes from vacuum pumps, transformers, motors, etc., should be accumulated for

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pickup and disposal by EHS/RMS
(<http://www.uaa.alaska.edu/EHSRMS/ehspersonnel.cfm>).

Biocides—Concentrated solutions are not to be released to the sanitary sewer. Disposal is to be limited to one gallon of "working strength" solution per laboratory per day. This applies primarily to germicides and occasional disposal of pesticides. Chemicals which persist in the environment should be released only in trace quantities.

In addition to the previously described wastes, toxic, carcinogenic, oxidizer, reactive and explosive wastes will be picked up by EHS/RMS or a qualified contractor.

Contact the vendor for pickup of all compressed gas cylinders.

Needles and syringes must not be put in the regular trash. They should be accumulated in appropriate sharps containers. Containers should be filled to no more than $\frac{3}{4}$ full. Contact EHS/RMS for disposal. Needles and syringes contaminated with infectious agents must be autoclaved or otherwise decontaminated before disposal. Needles and syringes contaminated with radioactive materials or chemical carcinogens are to be placed in containers specifically designated for these waste classifications. Refer to EHS/RMS [*Statement 22, Disposal of Medical and Infectious Waste*](#) and [*Statement 17, Bloodborne Pathogens*](#) for additional information concerning these types of wastes.

Paint Disposal

WATER-BASED OR LATEX PAINT

This paint may be disposed of in several ways and is presented in order of preference:

- Use the paint for University jobs.
- Donate any surplus paint to community service projects.

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- Solidify the paint by mixing with vermiculite, granulated clay, or by applying it to a surface for eventual disposal. After completely dry, dispose of as regular trash. Never dispose of liquid paint in the trash.
- Contact EHS/RMS to take the paint to a municipal solid waste service depot for disposal.

PETROLEUM-BASED OR OIL PAINT

This paint is a regulated hazardous waste and restrictions apply. Departments are encouraged to use only water-based paints whenever possible and only order sufficient quantities to meet job needs for both forms of paint.

This paint may be disposed of in several ways and is presented in order of preference:

- Use the paint for University jobs.
- Donate any surplus paint to community service projects.
- Contact EHS at 786-1279 for disposal.

Solvents used for cleaning or prepping petroleum-base paint activities are also regulated as hazardous waste. Methods to manage this waste stream are, in order of preference:

- Limit the use of petroleum-based paints and solvents.
- Contact EHS at 786-1279 for disposal.

Prohibited Discharges

Check the MSDS of the hazardous material for proper disposal methods. Be alert that many hazardous materials are prohibited from being discharged to the sanitary sewer are by the Clean Water Act of 1977.

Use of Chemical Carcinogens

Control practices must be used for the prevention of occupationally acquired cancer and for the protection of the general environment. These practices are to be used in all activities involving known or suspected carcinogens, teratogens, and mutagens.

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Some of these compounds are fairly common materials used in many laboratories, such as chloroform, carbon tetrachloride, benzene, dioxane, hydrazine, thiourea, and o-toluidine. There are over 2000 other chemicals for which there is allegedly some degree of evidence for carcinogenicity. Many of these also warrant careful planning and control procedures. EHS/RMS should be consulted when questions arise about the carcinogenic potential of certain chemicals handled in laboratories. Listings of known or suspected agents and detailed standards governing their use are available from EHS/RMS on request.

Principal investigators are responsible for assuring that laboratory personnel are trained in safe practices, for reporting exposures or potential exposures to chemical carcinogens, and for the submission of a safety plan for the research under their direction to EHS/RMS. The safety plan is to describe the procedures that will be used to insure the safe handling of chemical carcinogens, an assessment of the potential risks, the need for medical surveillance, procedures for handling spills, and waste disposal methods.

Exposures of personnel to chemical carcinogens, such as a concentrated contaminated aerosol through research procedures, spills, or inoculation with a contaminated needle, are to be reported to EHS/RMS (786-1279 or <http://www.uaa.alaska.edu/EHSRMS/ehspersonnel.cfm>). Refer to EHS/RMS *Statement 16, Use of Chemical Carcinogens* for additional information.

Use of Biohazardous Agents

Biohazardous agents are infectious microorganisms, or their toxins, which cause or may cause human disease. Control practices for the prevention of laboratory acquired infections and for the protection of the general environment will be included in all research programs involving biohazardous agents.

Principal investigators are responsible for assuring that laboratory personnel are trained in safe practices; biohazardous exposures and

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potential exposures are reported, and a safety plan for research under their direction is submitted to EHS/RMS. The safety plan is to describe the procedures that will be used to insure the safe handling of biohazardous agents, an assessment of the potential risks, the need for medical surveillance, procedures for handling accidental spills and waste disposal methods.

Prior to initiation of work, the principal investigator is to notify EHS/RMS (786-1279 or <http://www.uaa.alaska.edu/EHSRMS/ehspersonnel.cfm>) of the agents used and the location of the laboratory. There are no facilities on campus appropriate for working with dangerous class 4 viruses, so work involving these agents is prohibited.

Exposures of personnel to biohazardous agents, such as exposure to a concentrated contaminated aerosol from research procedures, spills, or inoculation with a contaminated needle, should be reported to EHS/RMS (786-1279 or <http://www.uaa.alaska.edu/EHSRMS/ehspersonnel.cfm>) immediately.

*Flammables and
Combustibles
Storage & Use*

Special storage guidelines apply to substances which have the following flammable and combustible characteristics. However the tables below can sometimes be misleading as the recent adoption of the International Fire Codes allows doubling and tripling of amounts when certain conditions exist (sprinkling, cabinetry, zoning).

	Flammables			Combustibles	
Classes	IA	IB	IC	II	III
Flash point	<73F	<73F	73F - 100F	100F - 140F	>140F
Boiling point	<100F	≥100F	N/A	N/A	N/A

The potential fire hazard depends on the flash point and the quantity of liquid being used. The following table gives the maximum size container allowed for each class of liquid.

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	Class				
<u>Container Type</u>	<u>IA</u>	<u>IB</u>	<u>IC</u>	<u>II</u>	<u>III</u>
Glass or Plastic	1 gal.	1 gal.	1 gal.	1 gal.	1 gal.
Metal	1 gal.	5 gal.	5 gal.	5 gal.	5 gal.
Safety Cans	2 gal.	5 gal.	5 gal.	5 gal.	5 gal.

The potential fire hazard also depends on the total quantity of flammable and combustible liquids present within a fire zone and the type of containers in which the liquids are stored. The maximum quantity allowed per unit is as follows:

1) Shelf or open storage:

- a) Glass, plastic, or cans 10 gal.
- b) Safety cans 25 gal.

2) Approved storage cabinets (maximum of two per fire zone)

- a) Class I & II 60 gal.
- b) Class III 120 gal.

3) Inside Storage Room (meeting NFPA Code recommendations)

- a) with sprinkler 4 - 10 gal/sqft
- b) without sprinkler 2 - 4 gal/sqft

It should be emphasized that quantity of flammables on hand must be kept to a minimum and that only in unusual circumstances (and with the approval of EHS/RMS) will the larger quantities be acceptable. The following guidelines should be followed:

1. If a one-gallon quantity of one specific liquid represents more than a ninety day supply of a Class IA or IB flammable, one-pint (IA) or one-quart (IB) shall be used.

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2. Multiple cans and/or bottles of any one specific flammable will not be permitted in a laboratory in open storage or storage cabinet if it represents more than a 90-day supply of that flammable.
3. Quantities stored in inside storage rooms shall not exceed a 180 day supply for that building.

Gasoline must be stored and transported on campus in safety cans. The use of safety cans in laboratories is encouraged where practicable.

Class I liquids shall not be transferred between metal containers unless the containers are electrically interconnected by direct bonding or by indirect bonding through a common ground. The maximum impedance of the bond shall not exceed 6 ohms.

Storage cabinets constructed to NFPA and/or UL standards should be used when required by quantity limits. Storage cabinets are not permitted in hallways. A central storage room is preferable to storage cabinets in each laboratory. This central storage alternative should be considered especially by departments which have centralized supply rooms.

Where approved storage cabinets or rooms are not provided, inside storage will comply with the following basic conditions:

- The storage of any flammable or combustible liquid shall not physically obstruct a means of egress from the building or area.
- Containers of flammable or combustible liquids will remain tightly sealed except when transferred, poured or applied. Remove only that portion of liquid in the storage container required to accomplish a particular job.
- If a flammable and combustible liquid storage building is used, it will be a one-story building devoted principally to the handling and storing of flammable or combustible liquids. The building will have 2-hour fire-rated exterior walls having no opening within 10 feet of such storage.

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- Flammable paints, oils, and varnishes in 1 or 5 gallon containers, used for building maintenance purposes, may be stored temporarily in closed containers outside approved storage cabinets or room if kept at the job site for less than 10 calendar days.

Every inside storage room will be provided with a continuous mechanical exhaust ventilation system. To prevent the accumulation of vapors, the location of both the makeup and exhaust air openings will be arranged to provide, as far as practical, air movement directly to the exterior of the building and if ducts are used, they will not be used for any other purpose.

All flammable storage areas are to be designated and properly signed to reflect their nature.

Flammable and combustible liquids require careful handling at all times. The proper storage of flammable liquids within a work area is very important in order to protect personnel from fire and other safety and health hazards.

- Storage of Flammable liquids shall be in NFPA approved flammable storage lockers or in low value structures at least 50 feet from any other structure. Do not store other combustible materials near flammable storage areas or lockers
- Bulk drums of flammable liquids must be grounded and bonded to containers during dispensing
- Portable containers of gasoline or diesel are not to exceed 5 gallons
- Safety cans used for dispensing flammable or combustible liquids shall be kept at a point of use.
- Appropriate fire extinguishers are to be mounted within 75 feet of outside areas containing flammable liquids, and within 10 feet of any inside storage area for such materials.
- Storage rooms for flammable and combustible liquids must have explosion-proof light fixtures

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- Bulk storage of gasoline or diesel are kept in above ground tanks. Tank areas are diked to contain accidental spills. Tanks shall be labeled IAW NFPA guidelines. All tank areas shall be designated no smoking - no hot work - no open flame areas.
- No flames - hotwork or smoking is be permitted in flammable or combustible liquid storage areas.
- The maximum amount of flammable liquids that may be stored in a building are
20 gallons of Class IA liquids in containers
100 gallons of Class IB, IC, II, or III liquids in containers
500 gallons of Class IB, IC, II, or III liquids in a single portable tank.
- Flammable liquid transfer areas are to be separated from other operations by distance or by construction having proper fire resistance.
- When not in use flammable liquids shall be kept in covered containers.
- Class I liquids may be used only where there are no open flames or other sources of ignition within the possible path of vapor travel.
- Flammable or combustible liquids shall be drawn from or transferred into vessels, containers, or portable tanks within a building only through a closed piping system, from safety cans, by means of a device drawing through the top, or from a container or portable tanks by gravity through an approved self-closing valve. Transferring by means of air pressure on the container or portable tanks shall be prohibited.
- Maintenance and operating practices shall be in accordance with established procedures which will tend to control leakage and prevent the accidental escape of flammable or combustible liquids. Spills shall be cleaned up promptly.
- Combustible waste material and residues in a building or unit operating area shall be kept to a minimum, stored in covered metal receptacles and disposed of daily.

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- Rooms in which flammable or combustible liquids are stored or handled by pumps shall have exit facilities arranged to prevent occupants from being trapped in the event of fire.
- Inside areas in which Class I liquids are stored or handled shall be heated only by means not constituting a source of ignition, such as steam, hot water or forces central systems located away from the area.

Compressed Gas Storage & Use

- Gas Cylinder Shipment Receiving
- Inspect bottle for defects & proper marking/labels
- Ensure stamped date on bottle has not expired
- Inspect valve assembly and adapter thread area
- Ensure MSDS is on file or with shipment
- Follow MSDS requirements for storage
- Gas Cylinder Storage
- Cylinder cap securely in place when not in use.
- Marked with contents and if empty/full.
- Stored up-right and secured to a stationary structure in an shaded and well-ventilated area.
- Cylinders not stored within 50 feet of exposed electrical components or combustible materials.
- Cylinders are protected from accidental rupture.
- Chemically reactive gases not stored within 50 feet of each other.
- Gas Cylinder Movement
- Must be secured to a cart or cylinder trolley
- Cap securely fastened
- Gas Cylinder Usage

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- Inspect valve adapter threads.
- Inspect all fasteners, hoses & regulators prior to hooking up to cylinder.
- Use only for approved purposes.
- Use in up-right position.
- Fasten cylinder to structure or cart.
- Regulators must be of same rated pressure as cylinder
- Keep cylinder valve shut when not in use; don't depend on regulators