University of Wisconsin Eau Claire

RISK MANAGEMENT & SAFETY
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Signature:	

Program Subject: Hazardous Waste Policy & Procedure

POLICY
UW-Eau Claire uses hazardous materials in teaching, research, building operations, construction and in housekeeping. Each person on campus is responsible for the proper use and disposal of these hazardous materials in their work areas in order to help protect human health, the environment and our University's assets.

This document provides guidance for the proper management and disposal of hazardous wastes by faculty, staff, and other personnel during their research, work assignment, and/or course of study in accordance with federal and state regulations.

The generator of hazardous waste is responsible for their waste from cradle-to-grave. This includes the collection, transportation, storage, and disposal of hazardous waste. Risk Management and Safety (RMS) is the department ultimately charged with managing hazardous waste generated at UW-Eau Claire and UW-Eau Claire Barron County campus.

The following policies and procedures will assist in managing hazardous waste:

1. PURPOSE
   - 1.1. To protect the health and safety of university faculty, staff, students and visitors through safe handling, storage, and disposal of hazardous and universal wastes generated in the workplace;
   - 1.2. To help ensure that UW-Eau Claire and UW-Eau Claire Barron County complies with federal, state, and local regulations pertaining to the handling and disposal of hazardous wastes;
   - 1.3. To reduce the potential environmental liabilities and costs of hazardous waste disposal.

2. SCOPE
   - 2.1. The policy and the procedures outlined herein applies to all UW-Eau Claire and UW-Eau Claire-Barron County faculty, staff, and student employees.
   - 2.2. This policy deals with the disposal of hazardous chemical waste.

3. APPLICABILITY
   - 3.1. This policy applies to all faculty, staff and students involved in research or instructional laboratories, chemical stockroom, art studios, and maintenance areas where hazardous wastes are generated, as well as the central storage area where hazardous wastes are stored at UW-Eau Claire.

4. REGULATORY AGENCY
   - 4.1. At the federal level, the US EPA regulates the management of both hazardous and non-hazardous solid waste under the Resource Conservation and Recovery Act (RCRA), Title 40

CFR parts 239 through 282. In Wisconsin, hazardous waste management is regulated under ch. 291, Wis. Stats., and chs. NR 660 to 699 under the Wisconsin Administrative Code. These requirements were developed to ensure that hazardous waste is managed in ways that protect human health and the environment.

5. RESPONSIBILITIES

5.1. Administration is responsible for:
- 5.1.1. Providing the necessary resources to carry out the hazardous waste program.

5.2. Directors, Department Chairs and Chemical Hygiene Officer are responsible for:
- 5.2.1. Implementing the HW program in their individual areas and departments, ensuring compliance within their disciplines, labs, areas and shops
- 5.2.2. Ensure staff and student have received training and instruction related to proper management of hazardous waste generated

5.3. Faculty and Staff responsibilities include:
- 5.3.1. Knowledge and understanding of steps needed to maintain compliance.
- 5.3.2. Maintaining proper storage and management of all generated wastes (hazardous, non-hazardous, and universal).
- 5.3.3. Ensure waste containers are properly labeled and in good repair. Provide secondary containment when possible, ensuring hazardous wastes or other regulated wastes are not stored in unapproved locations.
- 5.3.4. Consistently knowledgeable of the contents of each waste container and prevent the mixing of incompatible wastes that could create dangerous reactions.
- 5.3.5. Arranging for prompt removal of full waste containers.
- 5.3.6. Notify EHS staff that they require waste pickup services.

5.4. Risk Management and Safety (RMS) Department is responsible for:
- 5.4.1. Developing and administering a Hazardous Waste (HW) Management Program.
- 5.4.2. Providing hazardous waste generator training to faculty and staff.
- 5.4.3. Assisting departments with compliance to the HW program.
- 5.4.4. Proper disposal of hazardous waste.
- 5.4.5. Periodically audit the management of hazardous waste containers in laboratories and make recommendations to appropriate authority for corrective action.
- 5.4.6. Maintaining hazardous waste documentation, including submission of annual regulatory reports.
- 5.4.7. Coordinating transport schedule with waste disposal contractor for all hazardous waste and universal waste pickups at UWEC and UWEC-Barron County facilities.

6. TRAINING

6.1. Employees are trained annually on the proper waste handling procedures relevant to their responsibilities. Risk Management and Safety coordinates with Department Chairs/ Directors to arrange In-class trainings. If unable to attend scheduled in-class training, online training is also available through Canvas. Training is tracked by RMS via the Canvas tracking system

7. PROGRAM COMPONENTS

7.1. Reviewal Period

7.1.1. This policy will be reviewed at least annually.

7.2. Hazardous Waste Disposal Procedures

7.2.1. Solid waste is any garbage, refuse or other discarded material, and Hazardous waste is a specific category of solid waste that requires special management and disposal practices, as dictated by RCRA and the Wisconsin DNR under Wisconsin Administrative Code.

7.2.2. Waste Determination

7.2.2.1. All wastes must be properly classified to ensure proper disposal. This section discusses how a waste is classified to determine if it will require special handling and disposal

7.2.2.2. ***Solid waste*** is defined as any material determined to no longer fit for its intended use and is ready to be discarded. Solid waste may be in the form of a solid, liquid, semi-solid or a contained gaseous material. Only trained EHS staff should make waste determinations for any new waste streams. The waste disposal contractor may assist EHS staff in making waste determinations

7.2.2.3. ***Hazardous waste*** is a specific category of solid waste that requires special management and disposal practices. Waste is determined to be a hazardous if it is specifically listed in one of four lists in the RCRA regulations or if it exhibits certain characteristics or properties for reactivity, flammability, toxicity or corrosivity. In Wisconsin, hazardous waste determination is governed by Wisconsin Administrative Code Chapter NR 661: Hazardous Waste Determination and Listing. Contact the EHS Manager to assist with hazardous waste determinations on new waste streams.

7.2.3. Listed hazardous waste - There are four lists – F, K, P, and U. Three of these lists -F, P, and U are of interest to the academic environment.

7.2.3.1. **F-list** - identifies hazardous wastes generated from different sectors of manufacturing and industry; the F list wastes are known as wastes from non-specific sources. Many spent solvents on campus are found in this category.

7.2.3.2. **K-list -** identifies hazardous wastes from specific sectors of industry and manufacturing and are considered source-specific wastes. The campus rarely has this type of waste.

7.2.3.3. **U-list -** identifies hazardous wastes from discarded commercial chemical

products. This waste is considered toxic but not acutely hazardous.

7.2.3.4. **P-list -** identifies acute hazardous wastes from discarded commercial chemical products. These wastes can be extremely dangerous to human health or the environment. "P" wastes are of concern at UWEC because a small quantity of this waste (2.2 pounds) generated in one month can change our classification to a large quantity generator with significantly greater regulatory burden

NOTE: For P and U list purposes, the EPA defines a commercial chemical product as a chemical that is either 100 percent pure, technical (e.g., commercial) grade or the sole active ingredient in a chemical formulation.

A list of some of the most common EPA-listed chemicals follows:

Common F-Listed Solvents	Common U-Listed Chemicals	Common P-Listed Chemicals
Xylene	Acrylamide – (gels not included)	Cyanides (soluble cyanide salts)
Acetone	Benzene	Nicotine
Methanol	Formaldehyde	Epinephrine
Methylene Chloride	Formic Acid	Benzyl Chloride
Toluene	Hydrofluoric Acid	Sodium Azide
Methyl Ethyl Ketone	Methyl Methacrylate	Phosphine
Pyridine	Phenol	Arsenic Acid

7.2.4. **Characteristic hazardous waste**

7.2.4.1. If a generated waste is not a listed hazardous waste, it may be considered hazardous if it exhibits any one of the following four characteristics – flammability, corrosivity, reactivity, or toxicity. Dilution of *characteristic* hazardous waste to make it nonhazardous is not allowed. It is considered treatment and is subject to regulatory requirements

7.2.4.2. Ignitability -*EPA code D001*

a. Flammable Liquids – Flashpoint <140°F or 60 °C (e.g., alcohols, acetone, ethyl acetate, mineral spirits, gasoline), an ignitable compressed gas or oxidizer, or other material that can cause fire through friction, absorption of moisture or spontaneous chemical changes. Examples include used oil-based paint, used paint thinner, adhesives and mineral spirits.

7.2.4.3. Corrosivity - *EPA code D002*

a. Aqueous (water containing) liquids with a pH ≤ 2 or ≥ 12.5 or a liquid that corrode steel at a rate of > 6.35 mm (0.250 inches) per year. Examples include waste rust removers and waste battery acids. Additionally,
   - Inorganic Acids (e.g., hydrochloric acid, sulfuric acid, nitric acid, perchloric acid, phosphoric acid)
   - Organic Acids – (e.g., formic acid, lactic acid)

- Bases – (e.g., hydroxide solutions, amines)

7.2.4.4 Reactivity - *EPA code D003*

a. A waste that is normally unstable, readily undergoes violent changes without detonating, reacts violently with water, forms potentially explosive mixtures with water, generates toxic gases or fumes when mixed with water or non-corrosive materials, is capable of detonation or explosive reaction, or is a forbidden Class A or B explosive. Examples include:
   - Sulfides and cyanides
   - Peroxide formers (e.g., ethers, potassium amide, sodium amide, tetrahydrofuran)
   - Water Reactive Materials (e.g., sodium, potassium, lithium, calcium carbide)
   - Multi-nitrated Compounds (e.g., picric acid, nitrosoguanidine, trinitroaniline)
   - Perchlorate crystal formers (e.g., perchloric acids)
   - Compounds that may undergo vigorous polymerization (e.g., methyl acrylate)

7.2.4.1 Toxicity – EPA Code D004-D043

a. A waste which, when using the toxicity characteristic leaching procedure (TCLP), leaches any number of metallic, organic, or pesticide constituents in concentrations greater than specified in the regulation. Examples for these constituents include metals like silver, lead, mercury, cadmium, barium, chromium, and organic chemicals like benzene, chloroform, methyl ethyl ketone, and trichloroethylene as found in the:
   Maximum Concentration of Contaminants for the Toxicity Characteristic table.
   A waste is hazardous if it exceeds regulatory levels denoted in the far right column of the table. All levels are reported in milligrams/liter.

7.2.5 Chemical Inventory

7.2.5.1 Maintaining an accurate chemical inventory is a regulatory requirement for using, handling, and storage of hazardous materials. UW-Eau Claire and UWBC uses Chemwatch, an online chemical safety and SDS management system database, to assist in determining the hazards posed by the chemical and obtain emergency response information.

7.2.5.2 Departments are responsible for entering and maintaining their departmental inventory within Chemwatch. Chemwatch will periodically download all campus chemicals entered in their database to an Excel file, where the RMS Department will then upload the content to laptops at various kiosks strategically located throughout each campus. Any staff, student or visitor may quickly access the data. No password is necessary.

7.2.5.3 If assistance is needed with Chemwatch, contact Risk Management & Safety. Collaboration between departments and RM&S is essential for maintaining required chemical inventory records and regulatory compliance.

7.2.6 Chemical Storage

7.2.6.1 All chemicals must be stored in a satellite accumulation area near where the waste is generated.

7.2.6.2 Place containers in locations where they will not be subject to damage, tipping, or spilling from foot traffic, carts, work activities, etc.

7.2.6.3 Containers must be in good condition and compatible with the waste being stored.

7.2.6.4 Waste containers must be clearly labeled, identifying its constituents, percentages of each constituent, and the hazards. Labels are available from the EHS Manager or the Chemical Stockroom.

7.2.6.5 Waste containers must be kept closed during storage, except when adding or removing waste; open funnels sitting in a waste container is considered an open container by regulatory agencies and is not acceptable.

7.2.6.6 Use the appropriate cap for the application. For example,

a. High-Performance Liquid Chromatography [HPLC] experiments/research must have a tightly sealed cap or lid with hole(s) in the cap the exact size of the tubing to prevent the escape of volatile organic compounds (VOCs); if venting is necessary, it must contain a carbon filter.

b. If a chemical composition can react, build up pressure and could potentially explode, a pressure relief mechanism must be part of the cap.

7.2.6.7 Containers must be handled and stored properly to prevent rupture or leakage.

7.2.6.8 There shall be no chemical residue outside of container.

7.2.6.9 Containers must not be more than 90% full.

7.2.6.10 A single satellite accumulation area (SAA) can have no more than 55 gallons of hazardous waste and only one quart (2.2 lbs) of acute hazardous waste present and must be under the control of the operator of the process generating the waste. The generator must mark the container holding the excess accumulation of hazardous waste with the date the excess amount began accumulating. This excess hazardous waste must be removed from the SAA within three calendar days and transferred to the central accumulation area.

7.2.6.11 All chemical wastes must be stored using proper chemical segregation practices to avoid intermixing of incompatible materials. Refer to the **Compatible Storage Chart**, Appendix A, for guidance on how to properly store chemical waste containers).

7.2.6.12 Laboratory hoods may be used for containers that store odorous or volatile chemicals.

7.2.6.13 Ensure waste containers face forward so that labels are visible for viewing, EHS inspections and monthly inventorying, & waste pick up.

7.2.7 Acceptable Containers

7.2.7.1 Hazardous waste must be collected in suitable containers. The Chemical Stockroom Manager can supply containers of various sizes and materials.

a. Ensure that hazardous waste containers are compatible with the hazardous chemical waste content (e.g., do not use metal containers for corrosive waste).
b. Use containers that are in good condition and do not leak. Empty chemical glass containers can be reused for waste collection provided they have been appropriately rinsed clean and all labels regarding the original contents have been removed or blacked out.
c. Containers must have tight sealing caps or lids.
d. Do not use an oversized container that may take a year or longer to fill.

7.2.8 Mixed Wastes

7.2.8.1 If you mix one gallon of a hazardous waste with one gallon of a nonhazardous waste, you now have two gallons of hazardous waste and you have doubled the disposal costs. According to the mixture rule, nonhazardous waste that is mixed with listed hazardous waste is automatically hazardous waste. Therefore, **do not mix wastes.**

7.2.8.2 Dilution of *characteristic* hazardous waste to make it nonhazardous is considered treatment and is subject to regulatory requirements. The campus does not have a license to treat hazardous wastes. The only exception to the treatment restriction is simple neutralization which is discussed under sewer disposal.

7.2.9 Chemicals Safe to Sewer

7.2.9.1 There are many chemicals used in laboratories that do not meet RCRA's definition of hazardous waste, however, they may still be toxic or dangerous and should not be disposed in the normal trash or dumped down a lab sink.

7.2.9.2 Neutralization of Acids and Bases is acceptable. Refer to section on Neutralization.

7.2.9.3 To assist with determining what laboratory chemicals can safely be disposed, a list of chemicals used in the Chemistry Department at UW-Eau Claire has been approved by the City of Eau Claire for sewering so long as disposal of the chemicals to the sewer system is performed in the manner indicated on the list. At this time, disposing of chemicals through the landfill is prohibited.

7.2.10 Neutralization of Acids and Bases

7.2.10.1 If a liquid is hazardous only because of pH, campus employees may neutralize the solution and pour it down the drain. Use proper equipment including goggles, gloves, and apron and work in a hood. Add neutralizing agents slowly, stirring constantly. **If you are not familiar with neutralization techniques, do not attempt to neutralize solutions**.

a. Acidic solutions (pH <5)
   - Adjust the pH to 5-9 using a dilute solution (e.g. KOH, NaOH, $NaHCO_3$). Use a pH meter, indicator solution, or pH paper to determine the pH.
   - Flush down the drain of a chemical sink with 20 volumes of cool water.

b. Basic solutions (pH > 9)
   - Adjust pH to 5-9 using a dilute solution (e.g. HCl, H_2SO_4, HNO_3). Use a pH meter, indicator solution, or pH paper to determine pH.
   - Flush down the drain of a chemical sink with 20 volumes of cool water.

c. For highly concentrated acids, neutralization with a relatively dilute basic solution will take a very large volume of base and a long time. In this case, consider neutralization using a concentrated basic solution with plenty of ice for an ice bath, performed slowly, and carefully and with constant stirring. Monitor the temperature of the solution with a suitable thermometer to ensure that the solution doesn't get too hot. The same is true for neutralizing some concentrated bases.

7.2.10.2 Report neutralization activities to EHS Manager for regulatory reporting.

7.2.11 Reuse/Redistribution

7.2.11.1 Where feasible, reuse or redistributing partial quantities of a chemical to another department or employee is encouraged. Reuse of chemicals, especially in a laboratory, may not be as easily achieved due to the typical need for higher purity ingredients. However, chemicals such as acids and bases not contaminated with hazardous constituents can be used for neutralization reactions and used to reduce the volume of corrosive hazardous waste sent out for disposal.

7.2.11.2 Records of neutralizations must be maintained as described in the section on Neutralization of Acids and Bases.

7.2.12 Hazardous waste disposal

7.2.12.1 The EHS Manager will perform a sweep of all hazardous waste in the Chemistry Department's satellite accumulation areas (SAA) and in Student Health Services on the last Friday of the month or the following week if conflicts arise. All other departments requesting removal of waste materials from their areas are instructed to contact the EHS Manager at hunterd@uwec.edu . Removal will occur at the end of the month.

a. All end of month waste pick up requests should be made by 3:00 pm the previous day.
b. A waste generator who needs chemical waste picked up prior to the end of the month is instructed to email the EHS Manager listing the chemical(s) and container size(s).
c. Additional time is required for large waste pick-up requests (i.e., inventory clean-outs related to a renovation or a relocation project).

d. Only full bottles will be picked up at SAAs. If partially full containers are to be removed, notify the EHS Manager via email. The email should identify the partially filled chemical waste the department would like removed.
e. RMS will maintain an inventory of all chemicals, with approximate amounts, at each SAA monthly in order to track University's total waste generation. EH&S Manager will be responsible for ensuring monthly inventories are conducted and records maintained.
f. All containers must be labeled with its contents, including water, and an approximate percentage of each constituent.
g. All labels must be legible.
h. No signs of residue or spillage can be outside of container.
i. All containers must indicate the hazards associated with the chemical.
j. Waste will be collected in the area in which it was generated.

7.2.12.2 To assure proper disposal of all hazardous materials contact the EHS Manager.

7.2.12.3 Disposal of liquids or discharge of hazardous vapors, gases, fumes and dusts to the atmosphere is not considered a disposal method. Laboratory hoods should not be used to evaporate materials from open chemical containers.

7.2.13 Waste Minimization

7.2.13.1 The EPA has broad powers to enforce waste minimization based on the Hazardous Solid Waste Amendments of 1984. As a small quantity generator, the campus certifies they have made a good faith effort to minimize waste generation each time a manifest is signed.

7.2.13.2 It is important that all persons and departments generating hazardous waste consider how they can contribute to the waste minimization effort. The goal is to either prevent the formation or production of pollutants at the source or reduce the amount of hazardous waste that is generated.

7.2.13.3 Basic waste minimization options include:

a. Waste stream segregation-keep hazardous and non-hazardous wastes clearly separated
b. Good housekeeping-prevent contamination of good material, control spillage, etc.
c. Inventory control-keep track of materials to prevent duplicate orders, and generating outdated material
d. Order chemicals in smaller containers and quantities
e. Material substitution-where possible, use a non-hazardous chemical
f. Using smaller scale demonstrations
g. Modifying specific experiments-use a non-hazardous metal in place of mercury, lead, cadmium, etc.

7.2.13.4 If you have (or will be doing) any of the above, contact the EHS Manager so this information can be used to document campus commitment to waste minimization.

7.3 Universal Waste

7.3.4 Special and universal waste are wastes that may not meet the definition of a hazardous waste, but still requires special disposal or reclamation procedures. Universal waste is a subset of hazardous waste. Universal waste regulations were designated to encourage recycling and proper disposal of commonly generated hazardous waste while also reducing the regulatory burden in generating facilities. Universal wastes include: batteries, lamps, mercury-containing equipment, anti-freeze, and pesticides.

7.3.5 Batteries

7.3.5.1 The following is a disposal guide for batteries generated by campus operations:

7.3.5.2 Alkaline Batteries

a. Alkaline batteries include AAA, AA, C, D, 6 volt and 9 volt.
b. Disposal: **Normal Trash**

7.3.5.3 Lead Acid Batteries

a. Lead acid batteries are found in cars, trucks, motorcycles, boats, etc
b. Disposal: **Do not place in trash. Spent lead acid batteries are to be stacked and stored in the MCS Auto Shop and taken offsite to a recycler.**

7.3.5.4 Button Batteries

a. Button batteries are found in watches, calculators, cameras and other small equipment. They can contain silver oxide, mercury, lithium or cadmium. These materials are considered hazardous waste. The contents can be determined by reading original battery packaging.
b. Disposal: **Do not place in trash. Direct them to or notify the EHS Manager for collection and recycling.** Button batteries can only be recycled if they are segregated on the basis of metal content. To facilitate this, keep the original packaging to refer to once the battery is spent.

7.3.5.5 Lithium Batteries

a. Lithium batteries are found in some electronic equipment. See original packaging for content information.
b. Disposal: **Do not place in trash. Direct them to or notify the EHS Manager for collection and recycling.** Button batteries can only be recycled if they are segregated on the basis of metal content. To facilitate this, keep the original packaging to refer to once the battery is spent.

7.3.5.6 Nickle-Cadmium (NiCd) Batteries

a. NiCd batteries are found in items including medical equipment, pagers, and cellular telephones. Check original packaging for content information.
b. Disposal: **Do not place in trash. Direct them to or notify the EHS Manager for collection and recycling.** Keep NiCd batteries separate from other batteries during collection.

7.3.6 Fluorescent Lamps

7.3.6.1 Fluorescent lamps contain small quantities of mercury and other metals that are harmful to the environment and to human health. UWEC collects the following lamps for recycling:

a. Fluorescent lamps (tube style)
b. Compact fluorescent lamps (CFLs)
c. High pressure sodium vapor lamps
d. Metal halide lamps
e. Ultraviolet lamps
f. High- and low- pressure mercury vapor lamps
g. High intensity discharge (HID) lamps
h. Neon, black lights, and LED lamps

7.3.6.2 Facilities Management and Custodial Services collects, and stores used lamps in designated locations throughout campus until ready to be transitioned to MCS. Lamps must be labeled "Universal Waste" and include the date the first bulbs were placed in the box. Avoid breakage of lamps. Lamp boxes must be closed when not adding or removing lamps. A list of lamp storage locations is maintained by RMS.

7.3.6.3 Handling Broken Lamps

a. Carefully scoop up glass pieces and powder using stiff paper or cardboard. Place in sturdy box. Do not mix broken glass with unbroken bulbs.
b. Use sticky tape, such as duct tape, to pick up any remaining small glass fragments and powder.
c. Wipe area clean with damp paper towels or disposable wet wipes. Place tape, and towels in the box with the broken lamp.
d. Do not use a vacuum or broom for cleanup of broken lamps.

7.3.7 Mercury Containing Equipment
7.3.8 Pesticides
7.3.9 Anti-freeze

7.4 Special Waste

7.4.4 PCB Ballasts
7.4.5 Oil
7.4.6 Oil Filters
7.4.7 Solvent-Contaminated Wipes
7.4.8 Aerosols

7.5 Emergency Procedures

7.5.4 In the event of a chemical spill, call 911 immediately. UWPD will call EH&S Manager and/or Director of RMS in order to coordinate the spill response.
7.5.5 Eau Claire Fire Department (ECFD) is a HAZMAT Level 1 Team and will be the Incident Commander during a spill.

7.5.6 Faculty involved with a lab that either had a spill or is near a spill will need to be available to answer questions for ECFD.

Program Subject: Hazardous Waste Policy & Procedure

ATTACHMENT: A

CHEMICAL SEGREGATION AND STORAGE CHART

CLASS OF CHEMICALS and STORAGE GROUP *	RECOMMENDED STORAGE METHOD	CHEMICAL EXAMPLES	INCOMPATIBLES SEE SDS IN ALL CASES
Compressed Gases - Flammable	Store in a cool, dry area, away from oxidizing gases. Securely strap or chain cylinders to a wall or bench top.	Methane, Acetylene, Propane	Oxidizing and toxic compressed gases, oxidizing solids.
Compressed Gases - Oxidizing	Store in a cool, dry area, away from flammable gases and liquids. Securely strap or chain cylinders to a wall or bench top.	Oxygen, Chlorine, Bromine	Flammable gases.
Compressed Gases – Poisonous	Store in a cool, dry area, away from flammable gases and liquids. Securely strap or chain cylinders to a wall or bench top.	Carbon monoxide, Hydrogen sulfide	Flammable and/or oxidizing gases.
Corrosives – Acids INORGANIC	Store in a separate, lined/protected acid storage cabinet. **DO NOT store acids on metal shelves**	**Inorganic (mineral) acids -** Hydrochloric acid, Sulfuric acid, Chromic acid, Nitric acid.	Flammable liquids, flammable solids, bases, and oxidizers. **Organic acids**
Corrosives – Acids ORGANIC	Store in a separate, lined/protected acid storage cabinet. **DO NOT store acids on metal shelves**	**Organic acids -** Acetic acid, Trichloroacetic acid, Lactic acid	Flammable liquids, flammable solids, bases, and oxidizers. **Inorganic acids**
Corrosives – Bases	Store in a separate storage cabinet.	Ammonium hydroxide, Potassium hydroxide, Sodium hydroxide	Flammable liquids, oxidizers, poisons, and acids.
Explosives	Store in a secure location away from all other chemicals. Do not store in an area where they can fall.	Ammonium Nitrate, Nitro Urea, Trinitroaniline, Trinitroanisole, Trinitrobenzene, Trinitrophenol/Picric acid, Trinitrotoluene (TNT).	All other chemicals.

Program Subject: Hazardous Waste Policy & Procedure

CLASS OF CHEMICALS and STORAGE GROUP *	RECOMMENDED STORAGE METHOD	CHEMICAL EXAMPLES	INCOMPATIBLES SEE SDS IN ALL CASES
Flammable Liquids	*Store in a flammable storage cabinet. *Peroxide forming chemicals must be dated upon opening (e.g. Ether, Tetrohydrofuran) and removed for disposal within one year from opening date or following manufacturers recommendations*	*Acetone, Benzene, Diethyl ether, Methanol, Ethanol, Hexanes, Toluene*	*Acids, bases, oxidizers, and poisons.*
Flammable Solids	*Store in a separate dry cool area away from oxidizers, corrosives.*	*Phosphorus, Carbon, Charcoal*	*Acids, bases, oxidizers, and poisons.*
Water Reactive Chemicals	*Store in a dry, cool location. Protect from water and the fire sprinkler system, if applicable. Label location - WATER REACTIVE CHEMICALS*	*Sodium metal, Potassium metal, Lithium metal, Lithium Aluminium hydride*	*Separate from all aqueous solutions, and oxidizers.*
Oxidizers	*Store in a spill tray inside a non- combustible cabinet, separate from flammable and combustible materials.*	*Sodium hypochlorite, Benzoyl peroxide, Potassium permanganate, Potassium chlorate, Potassium dichromate. The following are generally considered oxidizing substances: Peroxides, Perchlorates, Chlorates, Nitrates*	*Separate from reducing agents, flammables, and combustibles and organic materials.*
Poisons/Toxic	*Store separately in a vented, cool, dry, area in chemically resistant secondary containers.*	*Cyanides, heavy metal compounds, i.e. Cadmium, Mercury, Osmium*	*Flammable liquids, acids, bases, and oxidizers.*
General Chemicals -Non-Reactive	*Store on general laboratory benches or shelving.*	*Agar, Sodium chloride, Sodium bicarbonate, and most non-reactive salts*	*See SDS*

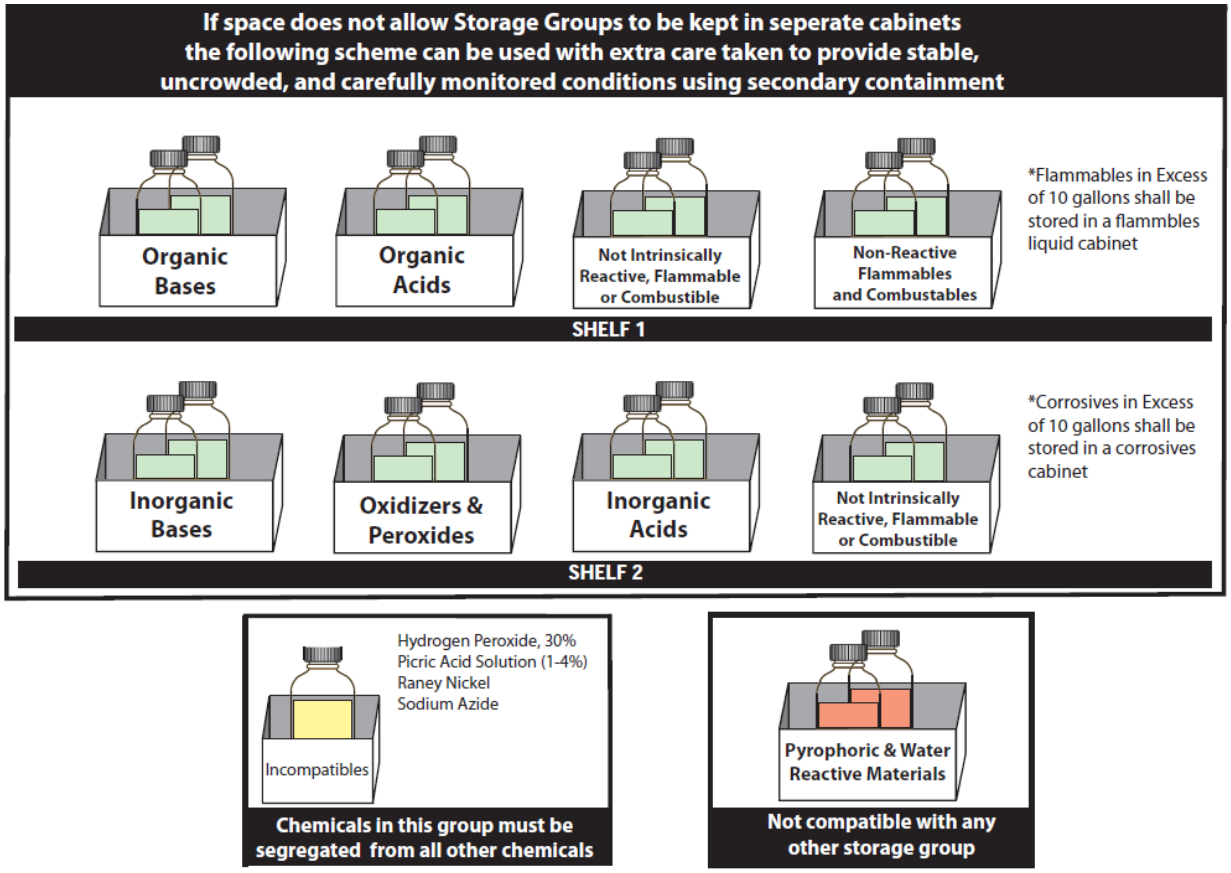
Program Subject: Hazardous Waste Policy & Procedure

The segregation chart shown above should be used at all times. Instances may exist where available storage space is limited, and best storage practices may not be used. In those instances, refer to the next page for alternative storage option.

ALTERNATE CHEMICAL SEGREGATION & STORAGE OPTION:

This chart should be used in conjunction with specific storage conditions taken from manufacturer's label and SDS.

A container accumulating hazardous waste that is incompatible with any waste or other materials accumulated or stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device.



Program Subject: Hazardous Waste Policy & Procedure