

Environmental Health and Safety

Hazardous Materials Management Plan



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Environmental Health and Safety

Hazardous Materials Management Plan

I. General

The Hazardous Materials Management Plan (HMMP) is developed and implemented for faculty, staff, and students of the University at Northern Colorado (UNC), as well as other community entities, contractors, and individuals who may be participating on campus. It is the purpose of this plan to provide guidance in the safe and proper storage, handling, transportation, and disposal of hazardous waste.

With the enactment in 1976 of the Resource Conservation and Recovery Act (RCRA), the storage, handling, transportation and disposal of hazardous wastes became regulated under Federal, State, and local laws. The Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment (CDPHE) have developed regulations for compliance with RCRA. CDPHE regulations are in some instances more stringent that the EPA regulations.

This plan does not cover all regulatory requirements regarding hazardous materials, but should be considered the minimal requirements in order to comply with regulations that affect the management of hazardous materials.

II. Responsibilities

UNC is registered with CDPHE as a Very Small Quantity Generator (VSQG) of hazardous waste. It becomes the responsibility of each employee to identify any possible hazardous waste that he or she might be generating and then assure that the waste is handled in a manner consistent with regulations.

Campus Policies

UNC Board of Trustees has adopted a policy (1-1-507 Hazardous Materials) which states:

Employees who handle toxic or hazardous substances on behalf of the University are required to maintain, use and dispose of such substances in accordance with applicable UNC Hazardous Material Management Plan procedures, state, federal and local laws/regulations as a condition of their employment. The employee should obtain assistance in ascertaining his/her obligations under these laws and regulations from the Manager of Environmental Safety or his/her designee. Any employee who violates any such laws or instructions given by the University Environmental Safety Office shall be deemed to have acted outside the scope of his/her authority.

Environmental Health & Safety

Environmental Health and Safety (EHS) is primarily responsible for the implementation of the Hazardous Materials Management Plan. The Director of EHS is responsible for administering UNC's HMMP.

III. Definitions

<u>Globally Harmonized System (GHS):</u> A system that defines and classifies the hazards of chemical products, and communicates health and safety information on labels and safety data sheets.

<u>Hazard Class</u>: A way of grouping together products/materials that have similar properties. The nine hazard classes in this plan are common to the Globally Harmonized System (GHS) and will be used worldwide by all countries that have adopted GHS.

<u>Hazard Communication:</u> Communication and training for any business or agency that produces and/or uses hazardous materials and wastes. States and companies shall provide employees with information and training on the proper handling and use of these materials.

<u>Hazardous Material</u>: is any material or substance, which if improperly handled, can be damaging to personal health and the environment.

<u>Hazardous Waste:</u> A special type of gaseous, liquid, or solid waste that cannot be disposed of by common means like other by-products of everyday life. Depending on the physical state of the waste, treatment and solidification processes might be required.

<u>Hazardous Waste Generator:</u> Any person, defined by site, whose act or process produces hazardous waste identified or listed by the regulatory authority or whose act first causes a hazardous waste to become subject to regulation."

<u>Satellite Accumulation Area (SAA)</u>: A location at or near any point of generation where hazardous waste is initially accumulated in containers before consolidating the waste at a designated accumulation area (90/180-day) or storage area.

IV. Hazardous Material Safety

Hazards associated with a material may be determined by reviewing the Safety Data Sheets (SDS), the product label, or the shipping papers. Federal and State regulations determine if a material is hazardous through specific listings and definitions addressed in EPA regulation 40 CFR 261 and CDPHE regulation 6 CCR 1007-3, Part 261. The final tool in determining if a material is hazardous is personal knowledge; an individual may have created the materials or have specific information about the material's ingredients.

Before handling hazardous materials, review any applicable safety procedures provided by direct supervisors, department, and EHS. EHS has additional hazardous material safety resources that can be found through the University of Northern Colorado <u>EHS website</u>.

V. Identifying Hazardous Waste

The EPA Resource Conservation and Recovery Act (RCRA) has established authority and control of handling and disposing of all solid chemical wastes and discarded liquids and gases in containers. All generators of RCRA regulated waste are required to determine if the waste is hazardous. This is accomplished by determining if any of the constituents of the waste are specifically "listed" hazardous waste constituents or if the waste has a regulated characteristic of hazardous waste.

"Listed" Chemical wastes are broken down into the following lists:

- "K" listed waste from specific sources.
- "F" listed waste from non-specific sources.
- "U" listed wastes from off-spec or discarded commercial chemicals.
- "P" listed wastes from off-spec or discarded commercial chemicals which have been designated as acutely hazardous.

Under the Hazardous and Solid Waste Amendments (HSWA) of 1984, additional substances were incorporated into the hazardous waste regulations by having characteristics of hazardous waste. A generator must determine if a waste possesses one or more of the following characteristics: ignitability, corrosivity, reactivity or toxicity. A waste known to be contaminated with constituents having one or more of the four characteristics must be handled by the generator as hazardous waste, unless the generator develops the detailed waste analysis required to establish the absence of regulated characteristics to the point specified in the regulations.

Characteristics of Hazardous Wastes

Ignitability – A chemical waste is ignitable if it has a flash point below 140 degrees Fahrenheit, if it is an ignitable compressed gas, or if it is a substance that readily yields oxygen to stimulate combustion. EPA hazardous waste number D001.

Corrosivity – Chemical solutions with a pH less than or equal to 2 or greater than or equal to 12.5 are considered corrosive. EPA hazardous waste number D002.

Reactivity – Chemicals that are normally unstable or react violently with water. EPA hazardous waste number D003.

Toxicity – Toxicity Characteristic Leaching Procedure (TCLP) toxic chemicals are waste in which extracts contain high concentration of heavy metals or pesticides that could be released into the groundwater.

Federal, state and local laws regulate the disposal of hazardous materials. The disposal of any hazardous material in the sewer system, storm water system, on the ground, or in the regular trash is strictly forbidden.

VI. Hazardous Waste Handling

Once solid waste is identified as hazardous waste by the generator, it must be handled in accordance with the HMMP. Hazardous waste must <u>not</u> be: disposed of or recycled with other forms of trash or waste, burned or allowed to evaporate into the air, disposed of or diluted in water (i.e., down the drain), nor disposed of on or buried in the land.

An appropriate, compatible container (bottle, jar, drum, etc.) must be used to accumulate waste. It must be properly labeled. Hazardous waste containers must be kept closed except when adding or transferring waste and the contents of the containers must be compatible with the container

Transporting hazardous waste by vehicle on campus shall be conducted by the EHS department or EHS designee (contracted waste hauler, etc).

VII. Labeling

A chemical container must be labeled as hazardous material / waste at the time that its content is designated as a hazardous material / waste. When a hazardous waste is added to a container, the container must be labeled as hazardous waste and dated at the time the first amount of hazardous waste is added to the container. Labels can be obtained through the EHS department.

The UNC Hazardous Material/Waste tag (section VII.A) will be used on <u>all</u> waste containers. The container must be clearly labeled with the full written chemical name, chemical components, waste volume and Generator's signature. If the collection container contents contain a mixture, all components must be listed by percent or volume on the UNC waste tag.

Containers will not be reused once designated for hazardous waste disposal.

A. UNC Hazardous Material / Waste Tag

The UNC Hazardous Material / Waste tag (see Appendix A) shall be filled out completely, by persons generating the waste. If a mistake is made on the tag, discard the tag and complete a new tag.

Once the material is ready for pickup or to be taken to the waste storage area, attach the bottom copy of the tag to the waste container, and send the top copy of the tag to EHS (Campus box 57).

Additional tags can be obtained through the EHS department.

VIII. Packaging

U.S. Department of Transportation (DOT) regulates the proper packaging of waste containers. DOT regulation 49 CFR 172 provides information on the proper container selection for hazardous waste. In addition, waste storage containers must be non-leaking, chemically compatible, safe, and clearly labeled. Hazardous materials must be kept in appropriate closed

containers at all times, except when adding or removing material. The following guidelines must be followed when packaging hazardous waste:

- Use a leak-proof container that will safely contain the contents.
- Do not mix incompatible chemicals.
- Do not overfill a container with liquid waste.
- Do not mix hazardous materials with non-hazardous materials.
- Allow an empty space of approximately five percent of the container volume for thermal expansion.
- Be suspicious of any pressure build-up inside the container.
- Hazardous waste must be stored based on compatibility. Store materials of the same hazard class together.
- Loose solid materials must be placed in a sealed container.
- Old cans of ether, picric acid and other peroxide forming or shock sensitive items shall be left in place and not disturbed. Contact UNC Police Department (UNCPD) immediately.

IX. Shipment of Hazardous Materials

The shipping of hazardous materials requires proper packaging, labeling, and handling. All Hazardous Materials that need to be shipped from the University of Northern Colorado will be coordinated through EHS. EHS staff will help ship materials safely and in accordance to the rules and regulations set forth by the Department of Transportation (DOT), the Federal Aviation Administration (FAA), the International Civil Aviation Organization (ICAO) and the International Air Transport Association (IATA).

Small volumes of certain hazardous materials and wastes may be shipped out by EHS staff.

For all other shipments, the University will hire a certified contractor to properly prepare all documentation and ship hazardous materials and wastes from the University to maintain regulatory compliance.

A. Hazard Classes

Every hazardous material is assigned to one of nine hazard classes as defined in 49 CFR 172.101 and 173. Within each hazard class, there may be separations that further categorize the hazardous materials within a given hazard class, each subunit of the hazard class is called a division.

Each individual hazard class and division have a corresponding placard. Stickers of these pictograms are found on the outside of shipping containers as a means of communicating the hazard to everyone who handles the package throughout shipment. The nine hazard classes, their divisions, and the corresponding pictograms can be found in Appendix B.

A detailed chart showing the postal mailability of hazardous materials, separated by hazard class can be found in Appendix E.

X. Waste Storage Areas

Hazardous wastes must be stored in designated waste storage areas. Waste storage areas must be placed next to or near the point of waste generation, and the individual who operates that process or area must manage and control the hazardous waste container.

Waste storage areas can be in a laboratory fume hood, on a countertop, or on the floor (5 - 30-gallon containers), but not in an aisle. They should not be placed in front of or behind doors or windows, blocking means of egress or suspended from equipment.

Aisle space must be maintained to allow the unobstructed movement of emergency equipment and personnel into all areas where waste is stored.

UNC has three Hazardous Waste Storage Areas on campus. Once waste containers are full, they are then transferred to the designated hazardous waste storage area.

- Waste generated on East Campus will be stored in the waste storage area in the Facilities Management storage building (east of the Heating Plant).
- Waste generated in facilities located on West campus will be stored in the waste storage area at Ross Hall.
- Waste generated in facilities located on Central campus will be stored in the waste storage area in the Arts Annex.

Proper labeling (section VII) must be used when placing containers in a waste storage room.

A. Pick-up Schedule

EHS coordinates hazardous waste pick-ups for all campus departments that generate hazardous waste. It is the responsibility of the generator / manager of the hazardous waste to notify EHS of hazardous waste to be disposed.

A contracted hazardous waste disposal company provides waste pick-ups to campus.

XI. Satellite Accumulation Areas

A generator may accumulate no more than 55 gallons of total hazardous waste or one quart of acutely hazardous waste in containers at or near any point of generation where wastes initially accumulate and which is under the control of the operator/generator of the process that generates the waste, either visually or under lock and key. The following guidelines shall be followed when utilizing a Satellite Accumulation Area:

- Satellite Accumulation Areas must be marked with a standard sign (see Appendix C), please contact EHS if you need an updated sign.
- Satellite accumulation waste must be stored in a container that is in good condition and that is compatible with and will not react to the waste being stored.
- Satellite accumulation containers holding hazardous waste that is incompatible with any waste or other materials stored nearby in other containers must be segregated by a wall or other appropriate mechanism.

- All containers must be properly labeled with the words "Hazardous Waste" as well as identifying the contents of the containers
- Containers must remain closed at all times, except when adding or removing waste materials
- Do not leave funnels in the collection container (unless the funnel has a lid and then the lid must be kept closed at all times except when adding waste material)
- Satellite accumulation containers must be clearly marked with wording that identifies the contents such as: "Hazardous waste", "waste solvent", "Acid waste" etc.
- The date when the initial accumulation begins must be clearly marked and visible for inspection on each container.
- All students and employees shall be trained and familiar with proper waste handling and emergency procedures relevant to their responsibilities during normal operations and emergencies
- Each generator is responsible for ensuring that monthly inspections are conducted all areas where satellite accumulations containers are stored.
- Each satellite accumulation container must be inspected once during each month for signs of container deterioration and leakage, compatibility with the hazardous waste stored inside the container, that the container is in over all good condition and properly maintained, and that the container is labeled and closed appropriately.
- Problems revealed during the monthly inspection must be corrected on a schedule which ensures that the problem does not lead to an environmental or human health hazard. If there is an imminent hazard or a hazard has already occurred, remedial action must be taken immediately.
- A log of these inspections (see appendix D) shall be kept and shall include the following information
 - date of the inspection
 - who performed the inspection
 - what satellite accumulation containers were inspected
 - the results of the inspection (e.g. container not labeled), and how many deficiencies were remedied (e.g. labeled an unlabeled satellite accumulation container "Hazardous Waste")
 - The completed Satellite Accumulation Area Monthly Inspection Form shall be turned in to EHS.

XII. Waste Profile / Analysis

When EHS receives Hazardous Material / Waste tags, information is reviewed to find out if a waste stream profile is required for transporting and disposing of the waste. If a waste stream profile is required the generator of the waste will be asked for additional information which may include: physical and chemical properties, hazardous characteristics, viscosity, physical state, and chemical composition.

The contracted waste disposal company may request additional analysis of the waste. This can vary for each waste stream. Once the analysis is completed the waste stream profile request can be reviewed.

Waste stream profiles are reviewed and re-certified annually by the EHS department.

XIII. Recordkeeping

All waste management activities shall be documented. The following are documentation requirements:

- All hazardous waste documentation related to transportation, shipment, regulatory reporting, and land disposal records, etc.
- Hazardous Material / Waste tags.
- Satellite Accumulation Area Monthly Inspections (retained for a minimum of three years)
- Initial / Annual hazardous waste management training. (Training conducted by departments separately – send a copy of the training roster to EHS.)
- All other hazardous materials documentation.

All waste management documents will be maintained by EHS for a minimum of seven years, unless otherwise indicated.

XIV. Training

Training is required for any UNC employee that generates or handles hazardous materials. Generators and/or handlers of hazardous waste must receive, at a minimum, Hazardous Communication training annually based on OSHA 29 CFR 1920.1200 and 29 CFR 1910.1450. Hazard Communication training will include an introduction to the HMMP. Refer to the UNC Hazard Communication Program.

Additional training should be received by generators and handlers of waste. This training shall consist of emergency procedures, emergency system, and a review of the hazardous materials regulatory requirements set forth by EPA, DOT, OSHA and Homeland Security. The training will also include details of the HMMP as described in this document.

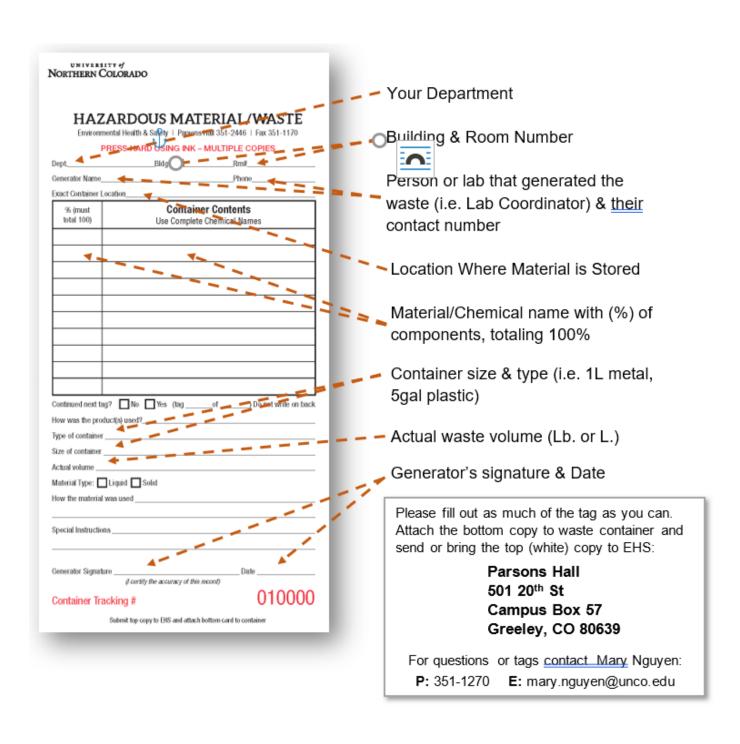
All training records must include the dates of training sessions, contents or a summary of the training session, names and qualifications of persons conducting the training, and names of persons attending the training session.

XV. Emergency Procedures

The HMMP documents the University's commitment to manage hazardous materials / waste to minimize the possibility of a release of hazardous waste into the environment. As part of this commitment, UNC maintains equipment on-site to facilitate spill cleanup.

The University has a Spill Prevention, Control, and Countermeasure (SPCC) Plan and Hazardous Materials Incidents Emergency Response Plan that is maintained by the EHS department. These plans support the spill response and emergencies related to hazardous waste management.

Appendix A - Filling Out Hazardous Material / Waste Tags



Appendix B - Hazard Classes for Shipping Hazardous Materials

Class 1: Explosives

- 1.1 Mass explosion Hazard
- 1.2 Projection hazard but not a mass explosion hazard
- 1.3 fire hazard and either a minor blast hazard or a minor projection hazard
- **1.4** Present no significant hazard; only a small hazard in the event of ignition or initiation during transport with any effects largely confined to the package
- 1.5 very insensitive substances which have a mass explosion hazard
- **1.6** Extremely insensitive articles which do not have a mass explosion hazard



Class 2: Gases

- 2.1 Flammable Gases
- **2.2 -** Non-Flammable, Non-Toxic Gases
- 2.3 Toxic Gas







Class 3: Flammable and Combustible Liquids

A flammable liquid is defined as a liquid. whose flash point does not exceed 100°F, when tested by closed-cup test methods, while a combustible liquid is one whose flash point is 100°F or higher, also when tested.









Class 4: Flammable Solids

- **4.1 –** Readily combustible under normal transportation conditions Matches, Sulfur
- 4.2 Spontaneous combustion under normal circumstances or heat up when coming into contact with air, catching fire





4.3 - Dangerous when Wet - when in contact with water, emit a flammable gas

Class 5: Oxidizing Substances, Organic Peroxides

- **5.1 –** Oxidizers not combustible themselves, but can contribute to combustion of other materials and accelerate a fire
- **5.2 –** Organic Peroxides Thermally unstable substances that give off heat while undergoing exothermic reactions



Class 6: Toxic Substances and Infectious Substances

- **6.1 –** Toxic Substances Cause death or serious injury or harm human health if swallowed, absorbed through the skin, or inhaled ex) pesticides
- **6.2 –** Infectious Substances Known or expected to contain pathogens that cause disease in humans or animals





Class 7: Radioactive Materials

I - Mild Radioactivity

II – High Radioactivity

III - Extremely Radioactive



Class 8: Corrosives

Liquids or Solids that cause damage by chemical action to living tissue, other freight, or packaging material. The most common corrosives are acids and bases



Class 9: Miscellaneous Hazardous Materials

May present a danger during transport, but are not covered in the other 8 hazard classes ex. Consumer commodities, dry ice



Hazardous Waste Satellite Accumulation Area

Check Containers for Leaks and Spills
Keep Lids Closed

Add Accumulation Date on Container When Full and Move to Storage Area

For Questions or Concerns Please Contact:

Mary Nguyen Environmental Health & Safety Specialist Office: (970)-351-1270 Email: mary.nguyen@unco.edu

This sign shall be displayed at each satellite accumulation area. If you notice that your sign is outdated, missing, or needs to be replaced, please contact EHS.

Appendix D-Satellite Accumulation Area Monthly Inspection Form

Instructions: Inspect waste containers holding hazardous wastes once a month for leaks, signs of corrosion, swelling, and proper labeling. If a container is found to be leaking, immediately transfer the waste to a new container. Containers must be closed at all times except when adding wastes. Incompatible wastes must not be stored next to each other unless they have a separate secondary containment.

Date of Inspection																								
Inspector Initial																								
All containers closed?	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N
All containers properly labeled, legible and complete?	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N
All containers undamaged, free of leaks/spills	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N
Containers free of debris?	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	Z
Container is compatible with other materials within close vicinity?	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N
Containers properly stored in secondary containment	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N
Proper access/isle space available?	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	Ν
Full containers moved to proper storage location within 5 days	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N	Υ	N
Corrective action taken/comments																								

Circle Y for YES or N for No for each question
All NO responses require immediate corrective actions.

Accumulation Area Location:

Inspector Signature:

Appendix E - DOT Hazard Classes and Postal Mailability

	Name of Hazard Class	Domes	stic Mail				
Class	(and Division when applicable)	Air Transportation	Surface Transportation	International Mail and APO/FPO/DPO Mail			
1	Explosives						
	Division 1.1: Mass Explosive Hazard	Prohibited	Prohibited	Prohibited			
	Division 1.2: Projection Hazard	Prohibited	Prohibited	Prohibited			
	Division 1.3: Fire and/or Minor Blast/Minor Projection Hazard	Prohibited	Prohibited	Prohibited			
	Division 1.4: Minor Explosion Hazard	Prohibited Only with p HQ approv per 341.2c		Prohibited			
	Division 1.5: Very Insensitive With Mass Explosion Hazard	Prohibited	Prohibited	Prohibited			
	Division 1.6: Extremely Insensitive; No Mass Explosion Hazard	Prohibited	Prohibited	Prohibited			
2	Gases						
	Division 2.1: Flammable Gases	Prohibited	Only ORM–D material per 342	Prohibited			
	Division 2.2: Nonflammable Gases	Only Consumer Commodity material per 342	Only ORM–D material per 342	Prohibited			
	Division 2.3: Toxic Gases	on 2.3: Toxic Gases Prohibited Prohibit		Prohibited			
3	Flammable and Combustible I						
	All Flammable Liquids	Prohibited	Only ORM–D material per 343	Prohibited			
	All Combustible Liquids Only Consumer Commodity material per 343		Only ORM–D material per 343	Prohibited			
4	Flammable Solids						
	Division 4.1: Flammable Solids	Prohibited	Only ORM–D material per 344	Prohibited			
	Division 4.2: Spontaneously Combustible	Prohibited	Only ORM–D material per 344	Prohibited			
	Division 4.3: Dangerous When Wet	Prohibited	Only ORM–D material per 344	Prohibited			

5	Oxidizing Substances, Organic Peroxides									
	Division 5.1: Oxidizing Substances	Only Mailable Limited Quantity material per 345	Only ORM–D material per 345	Prohibited						
	Division 5.2: Organic Peroxides	Only Mailable Limited Quantity material per 345	Only ORM–D material per 345	Prohibited						
6	Toxic Substances and Infection	ous Substances								
	Division 6.1: Toxic Substances	Consumer Commodity material per 346; other poisons as permitted in 346.231	ORM–D material per 346; other poisons as permitted in 346.231	Prohibited						
	Division 6.2: Infectious Substances	Only as permitted in 346	Only as permitted in 346	Only First-Class Package International Service with Registered Mail service per 622						
7	Radioactive Material	Prohibited	Only per 347	Only First-Class Package International Service with Registered Mail service per 622						
8	Corrosives (Liquids And Solids)	Only Mailable Limited Quantity material per 348	Only ORM–D material per 348	Prohibited						
9	Miscellaneous Hazardous Materials ID8000 materials, UN3077, UN3082, UN3334, or UN3335 materials	Consumer Commodity material and other materials as permitted in 349	ORM–D material and other materials as permitted in 349	Prohibited, except for magnetized materials per 349 and 622.4						