WVU ENVIRONMENTAL HEALTH & SAFETY

Laboratory Safety

Hazard Communication Standard

Hazardous Waste Management



OBJECTIVES

- How to work around chemicals safely
- How to work with chemicals safely
- How to manage hazardous waste





WHICH GOVERNMENT AGENCIES REGULATE US?





HAZARD COMMUNICATION





Hazard Communication Standard 29 CFR 1910.1200

All Employees have the Right to Know

- Hazard Identification
- Safety Data Sheets (MSDS)
- Labels
- Training
- Hazard communication plan



WHAT IS A HAZARDOUS CHEMICAL?

 Any chemical that poses a PHYSICAL hazard or a HEALTH hazard





PHYSICAL HAZARDS

- Explosives
- Flammable gases, aerosols
- Gases under pressure
- Flammable liquids, solids
- Self-reactive substances
- Pyrophoric liquids, solids





PHYSICAL HAZARDS

- Self-heating substances
- Substances that emit flammable gases on contact with water
- Oxidizing liquids, solids, gases
- Organic peroxides
- Substances corrosive to metal



HEALTH HAZARDS

- Acute toxicity
- Skin or eye irritants
- Skin or eye corrosion
- Respiratory sensitizer
- Skin sensitizer





HEALTH HAZARDS

- Germ cell mutagens
- Carcinogens
- Reproductive toxins
- Target Organ Systemic Toxicity (TOST)
- Aspiration hazard



HAZARD CLASSIFICATION - GHS

- Conflicts with NFPA
 - GHS classification is opposite
 - NFPA & HMIS: 4 = greatest hazard
 - GHS: 1 = greatest hazard









NFPA 704 DOOR POSTING





WEST VIRGINIA UNIVERSITY ENVIRONMENTAL HEALTH & SAFETY

GHS FLAMMABLE LIQUIDS

Flashpoint (FP) ≤ 93°C (200°F)
 – Use SDS

Category	Criteria
1	FP < 23 C (73 F), BP ≤ 35 C (95 F)
2	FP < 23 C (73 F), BP > 35 C (95 F)
3	$FP > 23 C and \le 60 C (140 F)$
4	$FP > 60 C (140 F) and \le 93 C (200 F)$



GHS TOXICS



Acute toxicity	Cat. 1	Cat. 2	Cat. 3	Cat. 4	Category 5
Oral (mg/kg)	≤ 5	> 5 ≤ 50	> 50 ≤ 300	> 300 ≤ 2000	Criteria: Anticipated oral LD50 between 2000 and 5000 mg/kg; Indication of significant effect in humans;* Any mortality at class 4;* Significant clinical signs at class 4;* Indications from other studies.* *If assignment to more hazardous class is not warranted.
Dermal (mg/kg)	≤ 50	> 50 ≤ 200	> 200 ≤ 1000	> 1000 ≤ 2000	
Gases (ppm)	≤ 100	> 100 ≤ 500	> 500 ≤ 2500	> 2500 ≤ 5000	
Vapors (mg/l)	≤ 0 .5	> 0.5 ≤ 2.0	> 2.0 ≤ 10	> 10 ≤ 20	
Dust & mists (mg/l)	≤ 0.05	> 0.05 ≤ 0.5	> 0.5 ≤ 1.0	> 1.0 ≤ 5	



LABELS

- Product name, identifier
- Symbols (Pictograms)
- Signal Words Danger, Warning
- Hazard statements
- Precautionary statements
- Supplier identification
- Supplemental information

Signal Word Physical, health, environmental hazard statements Supplemental Information Precautionary Measures First Aid Statements

Product Name or Identifier

Name & Address of Company

Telephone Number



The Basic Parts of A GHS-Compliant Label



- 2. Signal Word Either use "Danger" (severe) or "Warning" (less severe)
- 3. Hazard Statements A phrase assigned to a hazard class that describes the nature of the product's hazards
- 4. Precautionary Statements Describes recommended measures to minimize or prevent adverse effects resulting from exposure.
- 5. Supplier Identification The name, address and telephone number of the manufacturer or supplier.
- 6. Pictograms Graphical symbols intended to convey specific hazard information visually.

Sample label courtesy of Weber Packaging Solutions • www.weberpackaging.com



PICTOGRAMS

- Explosives
- Flammable liquids, gases, solids, organic peroxides
- Gases Under Pressure
- Oxidizers
- Corrosive to metal, skin, and eyes





PICTOGRAMS

- Acutely Toxic or Fatal
- Irritants or Toxic
- Respiratory sensitizers, carcinogens, reproductive toxins, aspiration hazards
- Aquatic Toxicity





CHEMICAL SAFETY LABELS IN THE LAB

 Lab workers must use original chemical names on labels and refer to the appropriate SDS



CHEMICAL LABELS







• All chemicals, no exceptions





 Labels must be on every bottle



KEEP ALL CHEMICALS LABELED





SAFETY DATA SHEETS - SDS

- What is in the product
- What are the hazards
- How to protect yourself
- Exposure limits
- First aid
- Fire, spill response
- Compatibility
- Storage precautions







HOW DO I GET AN SDS?

- You must get a SDS for every chemical in your lab and keep it on file for 30+ years
- Manufacturer's web site
- Lab worker or PI



CHEMICAL INVENTORY

- Use Provided EHS Template
- Use NFPA Hazard Information
- Lab worker
 - Give to CHO by July 1 of each year or before they leave for summer
 - CHO sends electronically to EHS by July 15th of each year
 - -ehs_chemicals@mail.wvu.edu



OSHA Lab Standard 29 CFR 1910.1450

Lab Workers have the Right to Know

- Hazard identification
- Information and training
- Personal protective equipment (PPE)
- Chemical hygiene plan



CHEMICAL HYGIENE PLAN

- What is it?
 - Procedure for the OSHA Lab Std.
- Copy should be available in lab
- Why is it important to you?
 Contains information on your safety





CHEMICAL HYGIENE PLAN LAB-SPECIFIC PROCEDURES

- Required content
 - -Hazard controls
 - Personal protective equipment
 - -Health & safety information
 - Decontamination, waste disposal





CHEMICAL HYGIENE PLAN LAB-SPECIFIC PROCEDURES

- Lab workers write them: specific to experiments
- Give to Chemical Hygiene Officer for review
- Must be available in the lab
- Revise if chemicals or procedures change
- Review with students and lab workers



SAFE WORK PRACTICES

- 1. Engineering controls
 - Fume hoods, exhaust
- 2. Administrative controls **
- 3. Personal protective equipment
 - Gloves, lab coat, respirator
- 4. Response equipment
 - Eye wash, safety shower, spill kit, first aid kit



SAFE WORK PRACTICES

What is the #1 <u>CAUSE</u> of Laboratory Safety issues? Too Little Space and Too Much Clutter!









SAFE WORK PRACTICES



Phone/communication device

Eyewash

Shower

Spill Control Equipment

Fire Extinguisher

First Aid Kit (Recommended)

EQUIPMENT TESTING

All Safety Showers and Eyewash Stations are tested for flow and operation annually by EHS.

Lab Workers are responsible for "Bump" Testing eyewash stations on a regular basis (weekly recommended)

This removes stagnant water and debris



CHEMICAL FUME HOODS PROTECT YOU



V

CHEMICAL FUME HOOD USE

- Set sash at correct height
- Wear PPE
- Work towards middle of hood
- Keep hood uncluttered




CHEMICAL FUME HOOD USE

- Don't block air flow
- Large equipment should be on blocks or racks to allow air flow





• Excess storage and clutter reduces air flow - increases the risk of exposure and accidents





PERSONAL PROTECTIVE EQUIPMENT (PPE) Appropriate for the hazard

- Gloves (Chemical / Thermal / Puncture)
- Eye Protection
- Lab coats, aprons, scrubs
- Long Pants
- Closed Shoes







GLOVES

- Appropriate for specific chemicals
- Check for leaks
- Double glove if necessary
- Be alert to unusual sensations in hands
- Don't touch your face, phone
- Remove gloves before leaving lab





EYE PROTECTION

Required in any area where there is a potential for eye injury



- Must be ANSI approved (Z87+ stamped)
- If prescription glasses are not ANSI approved, wear safety glasses, safety goggles, or a full face shield over them
- See your CHP for Specific PPE Requirements



GAS CYLINDERS MUST BE





Keep All Cylinders Chained.

H	 1221



❤

OK?



First Safety from Fisher Scientific







SEPARATE INCOMPATIBLES

Do not store acids with bases

Do not store nitric acid with other acids

 Do not store flammable solvents with oxidizers



SEPARATE INCOMPATIBLES

Do not store cyanides with acids

Store Water reactives alone

• Store Flammables with very low flashpoints in an explosion proof refrigerator



TIME SENSITIVE MATERIALS

- Peroxide Forming Chemicals:
- Ethers, Tetrahydrofuran, Dioxanes, etc.
- Mark on Bottle: Date Received, Date Opened, 6-month Test Result
- Submit as Waste <1 year from receive date
- Assessments:





 All Flammables MUST be Stored in Flammable cabinet(s)

WV State Fire Marshal





NO FOOD/DRINK IN LAB

- No Water Bottles
- No Soda / Coffee / Coke
- No Food / Lunch / Meals
- No Candy / Energy Bars / Mints
- Never eat or drink ANYTHING in Labs
- Do Not Take Above Items Into Lab



BREAK TIME





RCRA Hazardous Waste





Objectives

Understand Responsible Management of Waste and Potential Enforcement Actions

Learn what Hazardous Waste is

Understand how to manage Hazardous Waste

Identify what is a Universal Waste and differences in its management

Spills / Releases and Emergency Procedures



HAZARDOUS WASTE MANAGEMENT HIGHLY REGULATED & STRICTLY ENFORCED BY US EPA & WV DEP RCRA ENFORCEMENT OPTIONS



Administrative
Civil
Criminal



ENFORCEMENT

Administrative Orders and Civil Actions

• Violations of any RCRA requirement



• Fines Up to \$37,500 per day per violation





CRIMINAL ACTIONS

There are **criminal penalties**, ranging from a fine of \$50,000 per day or a **prison** sentence of up to **five years** to a total fine of \$1,000,000



CRIMINAL VIOLATIONS

- Transport HAZARDOUS WASTE
- Treatment of Waste (without permit)
- Unapproved Disposal
- Falsifying labels
- Placing persons in **imminent danger** of death or serious bodily injury





TIME SENSITIVE MATERIALS

- Peroxide Forming Chemicals:
- Ethers, Tetrahydrofuran, Dioxanes, etc.
- Mark on Bottle: Date Received, Date Opened, 6-month Test Result
- Submit as Waste <1 year from receive date
- Picric Acid if not kept wet





FAILURE TO PROPERLY MANAGE TIME SENSITIVES WILL RESULT IN THE INSTALLATION OF AN ACCUMULATION BOX IN YOUR LAB





WHAT IS A WASTE?

- At WVU, you are not at home.
 - Household Waste is Excluded from RCRA
- It is a "Waste" if discarded
 - It does not have to be in the trash or dumpster ...



WHAT IS A WASTE?

- EPA Definitions:
 - <u>Discarded</u>: Any material that is abandoned, recycled, or inherently waste-like
 - <u>Abandoned</u>: Accumulated or stored instead of being disposed



THESE ARE WASTES!





THESE ARE WASTES!





THIS IS A WASTE!





HAZARDOUS WASTE

- Characteristic waste
- Listed waste
- Hazardous waste
 mixtures





NEW REQUIREMENT

Now also have to know <u>why</u> it is hazardous and identify by marking the hazards on the label.

HAZARDOUS WASTE



Oxidizer (Ignitable)

Contains:

Glacial Acetic Acid

Date when full: _

For Disposal: ehs.wvu.edu



CHARACTERISTIC WASTE



Ignitable



Corrosive

Reactive



Toxic



CHARACTERISTIC HAZARDOUS WASTE Ignitable D001

- Liquid with $FP < 140^{\circ} F$
- Non-liquid, at standard temperature & pressure: can cause fire through friction, absorption of moisture or spontaneous chemical changes and when ignited burns so vigorously and persistently it creates a hazard
- Flammable gases, Oxidizers



CHARACTERISTIC HAZARDOUS WASTE Corrosive D002

- pH ≤ 2
- pH ≥ 12.5
- A liquid that can corrode steel at a rate > 0.25" per year



CHARACTERISTIC HAZARDOUS WASTE Reactive D003

- Unstable and reacts violently without detonating
- Reacts violently with water
- Forms explosive mixtures with water
- Generates toxic gases, vapors, or fumes when mixed with water
- Explosive or detonates if heated under confinement



Characteristic Hazardous Wastes Toxicity Characteristic See list - ehs.wvu.edu



EPA HW	Contaminant	Regulatory	EPA HW	Contaminant	Regulatory
Number	Contaminant		Number	Contaminant	
D004	Arsenic	5.0	D032	Hexachlorobenzene	0.13
D005	Barium	100.0	D033	Hexachlorobutadiene	0.5
D018	Benzene	0.5	D034	Hexachloroethane	3.0
D006	Cadmium	1.0	D008	Lead	5.0
D019	Carbon Tetrachloride	0.5	D013	Lindane	0.4
D020	Chlordane	0.03	D009	Mercury	0.2
D021	Chlorobenzene	100.0	D014	Methoxychlor	10.0
D022	Chloroform	6.0	D035	Methyl Ethyl Ketone	200.0
D007	Chromium	5.0	D036	Nitrobenzene	2.0
D023	o-Cresol	200.0	D037	Pentachlorophenol	100.0
D024	m-Cresol	200.0	D038	Pyridine	5.0
D025	p-Cresol	200.0	D010	Selenium	1.0
D026	Cresol	200.0	D011	Silver	5.0
D016	2,4-D	10.0	D039	Tetrachlorethylene	0.7
D027	1,4-Dichlorobenzene	7.5	D015	Toxaphene	0.5
D028	1,2-Dichloroethane	0.5	D040	Trichloroethylene	0.5
D029	1,1-Dichloroethylene	0.7	D041	2,4,5-Trichlorophenol	400.0
D030	2,4-Dinitrotolene	0.13	D042	2,4,6-Trichlorophenol	2.0
D012	Endrin	0.02	D017	2,4,5-TP (Silvex)	1.0
D031	Heptachlor (& its hydroxic	le) 0.008	D043	Vinyl Chloride	0.2



LISTED HAZARDOUS WASTE

- Non-specific source waste (F-list)
- Commercial chemical products

(P & U lists)



F- LISTED WASTE – HAZARDOUS WASTE FROM NON-SPECIFIC SOURCES Methylene Chloride (T) Acetone (I) Methanol (I) **Carbon Tetrachloride (T)** Xylene (I) **111-Trichloroethane (T)** Ethyl Ether (I) **Tetrachloroethylene** (T) **Trichloroethylene** (T) Ethyl Acetate (I) Methyl Ethyl Ketone (I,T) **Benzene (I,T)** Isobutanol (I,T) Toluene (I,T)

I = Ignitable, T = Toxic



LESS COMMONLY USED SOLVENTS FROM NON- SPECIFIC SOURCE LIST **Trichlorobenzene (T)** Nitrobenzene (T) **Chlorobenzene (T) Ortho-dichlorobenzene**(T) Cresols (T) **Trichlorofluoromethane** (T) **Cresylic Acid (T)** 1,1,2-Trichloroethane (T) Pyridine (I,T) Carbon disulfide (I,T) 2-Ethoxyethanol (I,T) 2-Nitropropane(I,T) n-Butyl Alcohol (I) Ethylbenzene (I) Methyl Isobutyl Ether (I) Cyclohexanone (I)


SOLVENT CONTAMINATED WIPES

New procedure for wipes and rags

- Label "Excluded Solvent Contaminated Wipes" (Do <u>NOT</u> label as Hazardous Waste)
- No Free Liquids (not dripping)
- Keep container closed



COMMERCIAL CHEMICAL PRODUCTS (P AND U LISTS)

- Commercially pure
- Technically pure
- Sole active ingredient in a formulation





P-List Acutely Toxic (on ehs.wvu.edu)

P-List

Always toxic and may be reactive

40 CFR 261.33

U-List

Could be any or all hazards

naz-							
ardous waste No. P023 P002	Chemical ab- stracts No. 107–20–0 591–08–2	Substance Acetaldehyde, chloro- Acetamide, N-(aminothioxomethyl)-		Haz- ardous waste No.	Chemical ab- stracts No.	Substance	
P057 P058	640-19-7 62-74-8	Acetamide, 2-fluoro- Acetic acid, fluoro-, sodium salt	1	U394	30558-43-1	A2213	
P002	591-08-2	1-Acetyl-2-thiourea		1001	75-07-0	Acetaldehyde (I)	
P003	107-02-8	Acrolein		11024	75 87 6	Acetaldehyde (i)	
P070	116-06-3	Aldicarb		0034	13-01-0	Acetandenyde, monoro-	
P203	1646-88-4	Aldicarb sulfone.		0107	62-44-2	Acetamide, N-(4-ethoxyphenyi)-	
P004 P005	309-00-2	Allyl alcohol		0005	53-96-3	Acetamide, N-9H-fluoren-2-yi-	
P006	20859-73-8	Aluminum phosphide (R.T)		0240	194-75-7	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters	
P007	2763-96-4	5-(Aminomethyl)-3-isoxazolol		0112	141–78–6	Acetic acid ethyl ester (I)	
P008	504-24-5	4-Aminopyridine		U144	301-04-2	Acetic acid, lead(2+) salt	
P009	131-74-8	Ammonium picrate (R)		U214	563-68-8	Acetic acid, thallium(1+) salt	
P119 P000	7803-55-6	Ammonium vanadate		see	93-76-5	Acetic acid, (2,4,5-trichlorophenoxy)-	
P010	7778-39-4	Arsenic acid H ₂ AsO ₄		F027			
P012	1327-53-3	Arsenic oxide $As_2 O_3$		U002	67-64-1	Acetone (I)	
P011	1303-28-2	Arsenic oxide As ₂ O ₅		U003	75-05-8	Acetonitrile (IT)	
P011	1303-28-2	Arsenic pentoxide		1004	08_86_2	Acetonhanone	
P012	1327-53-3	Arsenic trioxide		1005	50 00 Z	2 Acetulaminefluorono	
P036	696-28-6	Arsonous dichloride phenyl-		0005	33-90-3 75 00 5	Asstul shlarida (C.D.T.)	
P054	151-56-4	Aziridine		0006	75-30-5	Acetyl chloride (C,R,T)	
P067	75-55-8	Aziridine, 2-methyl-		0007	79-06-1	Acrylamide	
P013	542-62-1	Barium cyanide		0008	79–10–7	Acrylic acid (I)	
-				U009	107–13–1	Acrylonitrile	
				U011	61-82-5	Amitrole	
				U012	62-53-3	Aniline (I,T)	



P LIST – CHEMICAL <u>AND CONTAINER</u> ARE HAZARDOUS WASTES

- Do Not Rinse empty container
- Do Not put in Trash
- Do Not put in Broken Glass Boxes
- Collect empty containers, weigh boats, pipette tips and anything that comes into contact with the pure chemical, before use, as P-Waste.





WASTE LABEL - >> NEW <<

Must Mark Hazard



This information is to be on every container of hazardous waste

Labels available at:

Oxidizer (Ignitable)
Contains:
Glacial Acetic Acid
Date when full://
For Disposal: ehs.wvu.edu

HAZARDOUS WASTE

Ignitable Corrosive Reactive Toxic

http://www.ehs.wvu.edu/environmental/waste-management/waste-labels





HAZARDOUS WASTE AREAS

Satellite Accumulation Areas

Central Accumulation Areas (90 Day)



SATELLITE ACCUMULATION

- Containers must be
 - At or near the point of generation where the waste is initially accumulated.
 - (In the lab where it is generated)
 - Under the control of the operator of the process generating the waste



SATELLITE ACCUMULATION POINT

- Maximum amount allowed
 - 1 quart (~1 L) of liquid P-waste
 - 1 Kg (2.2 lbs.) of solid P-waste (NEW)
 OR
- 55 Gallon of Non-Acute Hazardous Waste







SATELLITE ACCUMULATION POINT Containers MUST be

In good condition

Has a cap with good seal
No cuts, rust, or damage

Compatible with the waste

Ex. No Acids in Metal Containers



SATELLITE ACCUMULATION POINT Containers MUST be

Kept <u>CLOSED</u>

-Must be sealed unless actively adding to container (**Tightly sealed**)

- -Must be original screw caps
- -NO Foil, Parafilm, or Plastic Wrap



VENTING

Containers can be **TEMPORARILY** vented to avoid buildup and possible rupture. **Use Vent Caps** or Label container "Venting in **Progress**"

>> NEW <<



Container with Container without DB Polyplast Vent



Container without Vent

Vent

40 CFR 262.15(a)(4)(ii)



SATELLITE ACCUMULATION POINT Containers **MUST** be

- Marked
 - "<u>HAZARDOUS</u> WASTE", >>NEW<<</p>
 - (Only if it is hazardous)
 - Hazard Identification, >>NEW<<
 - Mark all that apply

Ignitable, Corrosive, Toxic, Reactive, Oxidizer,

- Identify all contents (chemical contaminants)



SATELLITE ACCUMULATION POINT REQUIREMENTS

- Date must be marked on container <u>when full</u>
- More than 1 quart of liquid or 1 Kg of solid P-waste must be removed by EHS within <u>3 calendar days</u>





INSPECTIONS FOR SATELLITE AREAS

- Designed for Lab Workers to use.
- Not required but it is a Great tool to ensure your lab is in compliance.

New checklist is available online

Visit ehs.wvu.edu West Virginia University Environmental Health and Safety

Weekly Satellite Container Checklist

Building Room number: Date: Time: Inspector's Full Name: Regulatory Yes/No Requirement Citation Satellite Accumulation Area Is each waste accumulated at or near the point of generation? 262.15(a) Is each waste container under the control of the operator? 262.15(a) Is each waste container marked with the words "Hazardous Waste" and list 262.15(a)(5) what chemicals are in it to identify the contents? 262.15(a)(5) Are all hazards of the contents marked on the container? (i.e., ignitable, corrosive, reactive, toxic, oxidizer) 262.15(a) Does the area have less than 55 gallons of waste present? Does the area have less than 1 liter/qt or 1 kg/2.2 lbs. of acutely hazardous 262.15(a) waste present?1 265.15(a)(1) Are waste containers in good condition? (no deterioration or deformities) Are waste containers free of leaks? 262.15(a)(1) Are the wastes compatible with the containers? 265.15(a)(2) Are containers closed except when actively adding or removing waste? 265.15(a)(4) Has an EH&S Waste Form been submitted for the full containers? Forms available at http://ehs.wvu.edu/ Do full containers have a date marked on them? 265.15(a)(6) If the answer is no, to any of these questions, call EH&S at 304-293-3792 Please submit completed form to your Chemical Hygiene Officer (CHO).

Comments:

¹ EPA has designated certain chemical wastes as "Acutely Hazardous" and placed special restrictions on their accumulation and disposal. These "P-Listed" wastes **and their empty containers** must be disposed of as hazardous waste through the EH&S Hazardous Waste Program. Please label even empty containers of P-Listed wastes as "Hazardous





LAB CLEAN OUT

Containers must be labeled....not the boxes. Submit a slip for Lab Clean Out and EHS will come to your lab and customize a plan for you.



LABELING SHORTCUT

The container that is labeled is the container that must be <u>closed</u>.

and

Contents of each small vial must be compatible with the other vials.









Previously OK, Sealed, Labeled, Good Container, No Leaks. But Now...

Must Mark as "Hazardous Waste"

Hazard ID (Ignitable, Toxic, etc..)



OK?

Organic Wast

Hazardous W



Good Secondary Containment





SATELLITE ACCUMULATION POINT COMMUNICATION DEVICES >>NEW<<



- Some means of communication capable of summoning emergency assistance from police or fire must be immediately available to all personnel who handle hazardous waste even in satellite areas.
- Access to the communication device must be immediately available, meaning direct or unimpeded access, i.e., in the hallway.
- Internal communication devices such as intercoms, direct line of site, or voice contact with another employee who can summons emergency assistance could be acceptable under some circumstances.



SATELLITE ACCUMULATION POINT REQUIRED EQUIPMENT >>NEW<<



• Fire control equipment Unless you never have ignitable waste



• Spill control equipment Appropriate supplies for your specific wastes



Decontamination Equipment

Previously equipment requirements were only applicable in Central Accumulation Areas



SATELLITE ACCUMULATION POINT REQUIREMENTS

If you do not follow <u>ALL</u> of the Satellite Requirements, You will be considered a Central Accumulation Area (90 Day Area) and required to comply with all of those requirements.



CENTRAL ACCUMULATION AREA (90 / 270 DAY AREA)

- Unlimited Volume of Waste
- Up to 90 days or 270 days to ship waste offsite





- Containers in good condition
- Compatible w/waste
- Containers closed
- Marked "Hazardous Waste"
- Hazard Identifier Marked
- List contents
- Communication Device
- Emergency equipment
- No date until full
- 1qt / 1Kg P-waste

Central



- Containers in good condition
- Compatible w/waste
- Containers closed
- Marked "Hazardous Waste"
- Hazard Identifier Marked
- List contents
- Communication Device
- Emergency equipment
- Date first drop
- 90/270 day time limit
- Plus...



CENTRAL ACCUMULATION AREA Additional Regulatory Requirements

- Handle in a manner to avoid ruptures or spills
- Written Weekly Inspection (<7 Days)



Separate incompatible wastes and materials

CENTRAL ACCUMULATION AREA Additional Regulatory Requirements

- Sealed to Specification
- The words "Hazardous Waste" must be **visible** on all containers
- Adequate aisle space
 - Inspection / Leaks
 - Emergency access

CENTRAL ACCUMULATION AREA Additional Regulatory Requirements

- Date each container, if not already dated
- No Smoking Sign
- Contingency plan

 Train personnel potentially exposed to or who handle hazardous waste

INSPECTIONS- FOR CAA

WVU Environmental Health & Safety

Weekly RCRA Waste Container Checklists

EHS:

Inspect all CAA that EHS utilizes around campus **EVERY WEEK**

NEW FORM!

Contact EHS_Chemicals@mail.wvu.edu

Lab Workers or Area Manager: Inspect CAA that your group utilizes EVERY WEEK

	Building:		Room number:		
H	Date:	Time:	Inspector's Full Name:		
	Yes/No		Requirement	Regulatory Citation	
		90- D	ay Container Storage Area		
		Container Requirements - Part 262			
		Is each container marke	d with the accumulation date?	262.34(a)(2)	
		Is each container marke	d with the words "Hazardous Waste?"	262.34(a)(3)	
		Container	Requirements - Part 265 Subpart I ¹		
		Are all containers in goo	d condition and non-leaking?	265.171	
		Are the wastes compati	ble with the containers?	265.172	
		Are containers closed ex	ccept when actively adding or removing waste?	265.173(a)	
		Are containers stored in	a way that could cause them to spill?	265.173(b)	
		Are weekly inspections	conducted?	265.174	
		Are ignitable and reactive	ve wastes stored 50 ft from the property line?	265.176	
		Preparedness	and Prevention – Part 265 Subpart C ²		
		Is the area maintained i	n a manner to prevent fire, explosions & spills?	265.31	
		Facility must be equippe	d with (unless hazards posed would not require):		
		1. Internal communica	tions to signal emergency to facility personnel.		
		2. Communication dev	ice to alert local emergency response personnel.	265.32	
		3. Fire extinguishers.			
		Fire suppression: ad	equate water supply or foam producing		
		equipment.			
		Is emergency equipmen	t tested and maintained as needed?	265.33	
		Is there immediate acce hazardous waste?	ss to communication equipment when handling	265.34	
		Is there adequate aisles	pace for movement of emergency equipment?	265.35	

Comments:

OK?

USED OIL

- Must be labeled "USED OIL".
- No gasoline or solvents.
- Spills must be cleaned immediately don't just throw down absorbent.
- Containers must be kept closed.
- Used oil is not to be given to any other entity – other regulations apply.
- Used oil filters are managed as scrap
 do not put in the trash

HOW TO HAVE WASTE REMOVED

ehs.wvu.edu - Click Here ->

- VERY IMPORTANT!! <u>SAVE FIRST</u>!
- Fill out form on your computer.
- Save again and attach to an email to ehs_chemicals@mail.wvu.edu

Chemical Waste Form

The waste

management program is to ensure the proper handling and legal disposal of various types of waste from all WVU facilities. Request a waste disposal form.

UNIVERSAL WASTE

- Batteries
- Pesticides
- Lamps

UNIVERSAL WASTE REQUIREMENTS

- Label containers
 - Used Battery
 - Used Lamps
 - Used Mercury-Containing Equipment
 - Universal Waste Pesticide
- Pesticides
 - Also, require original label

Date///////	
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Used
Battery

Date///////

HANDLER REQUIREMENTS

- 1. Keep containers <u>CLOSED</u>, good condition
- 2. Store to minimize releases to environment
- 3. Place Label or Mark appropriately
- 4. Place <u>Start Date</u> on the Closed, Labeled Container

-Universal Waste can be kept onsite for 1 year max. -Releases are Hazardous Waste; manage accordingly

LAMPS ARE STILL A BIG PROBLEM

WE NEED YOUR HELP

IF YOU SEE THIS...

Contact 293-HELP for LAMP Removal or Call EHS

UNIVERSAL WASTE EMERGENCY PROCEDURES

- Clean-up released universal waste immediately
- Place waste and debris into structurally sound sealable container
- Mark container "Hazardous Waste" with the date
- Submit a hazardous waste form at ehs.wvu.edu
- If it is a large spill follow Hazardous Waste Emergency Procedures – Contact EHS

MERCURY THERMOMETER EXCHANGE PROGRAM

- Please do not purchase thermometers containing mercury.
- The minimum charge for dispose of a container with a broken thermometer is \$105
- If you have any EHS will replace them free of charge.
- Visit EHS website for details.
- If you break one you will have to keep the HW in your satellite area until there are more.

HAZARDOUS WASTE EMERGENCY PROCEDURES CONTINGENCY PLAN









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WEST VIRGINIA UNIVERSITY ENVIRONMENTAL HEALTH & SAFETY

MAJOR SPILLS / FIRES YOUR RESPONSIBILITY IS TO REPORT

- Dial 911
- Contact your Emergency Coordinator – John Hando, Joyce Addison or Paul Porter
- Notify your CHO or Supervisor

Always notify EHS if the release is outdoors



REPORT TO YOUR EMERGENCY COORDINATOR

- Your location (Building & Room #)
- Injuries, if any
- What happened: spill, fire, explosion, release
- What wastes or materials are involved
- Estimated amount
- Potential off-site contamination
- Name of your CHO





WVU EHS CONTACTS

- http://ehs.wvu.edu
- Shayna Boyles, Lab Safety Coordinator
- Joyce Addison, Manager, Hazardous Materials
- Paul Porter, Hazardous Materials Specialist
- Jennifer Scheuch, Hazardous Materials Specialist
- William "Bill" Graham, Hazardous Materials Tech

EHS_Chemicals@mail.wvu.edu



QUESTIONS AND DISCUSSION

Before Leaving Please Make Sure You Have Signed The Sign-in Sheet.



WEST VIRGINIA UNIVERSITY ENVIRONMENTAL HEALTH & SAFETY