SATELLITE ACCUMULATION AREA
(SAA)

1) If or when more than 55 gallons of hazardous waste or 1 quart of acutely hazardous waste as identified as P-listed waste is accumulated, it **must be dated** and EHS contacted for the removal of the containers within 72 hours. For flammable liquid waste storage limits, review Table III in the Lab Safety Manual chemical section. P-listed waste can be found at http://www.miami.edu/health-safety/p-list.pdf.

2) Do not put hazardous chemical waste into sinks, drains, or trash. Also, do not allow the chemical waste to evaporate in the fume hood.

3) Hazardous waste containers must be kept at the SAA designated by this sign. All containers must be labeled properly with the words "Used chemical waste" or "Hazardous waste" and the chemical contents. Old chemicals in the original container must have legible labels and the container should be in good condition. No abbreviations or trade names. Chemical mixtures should have the percentages of the hazardous ingredients.

EXAMPLE: Hazardous waste mixture **ACETONE 80%**
HEXANE 20%

4) Waste containers must always be kept closed, except when adding waste to containers. A funnel **CANNOT** be left in container.

5) Do not overfill waste containers. The exterior of the containers must be free of contamination. Clean any free product off of container.

6) Keep solids and liquids separate. Separate the following hazard classes of chemical waste: Acids, Bases, Halogenated, Non-halogenated, Oxidizers, and Reactive.

7) Date and dispose of peroxide-formers within six months after date of opening or one year after date of receipt.

8) For hazardous chemical waste pickup, follow the procedures on the "Used Chemical Inventory Form." The form can be found at http://www.miami.edu/ehs EHS Forms.

9) Designate a person(s) responsible for the waste stored in the SAA.

10) For questions, contact the Office of Environmental Health & Safety at **305-243-3268**.

Lab Waste Contact_____ Phone #_____

Lab Waste Contact_____ Phone #_____

Emergency Contacts

Brian Reding (305) 582-7281 **Yesser (Abraham) Somoza (786) 260-9662**

In case of Fire call 911

Medical or South Campus - Security (305) 243-6000

Gables Campus - Security (305) 284-6666 **RSMAS Campus - Security (305) 361-4766**

DCA (State Warning Point) (800) 320-0519

***Table I* Examples of Incompatible Chemical Storage Groups[1]**

Chemicals listed in Column A are not compatible with those in Column B

COLUMN A	COLUMN B
INORGANIC CHEMICALS	
Hydrides, Hydroxides, Metals, Oxides, Peroxides, Alkali and Alkaline Earth Carbides	Water, Acids, Halogenated Organic Compounds, Halogenating Agents, Oxidizing Agents
Azides	Heavy Metals and their salts, Acids, Oxidizing Agents
Cyanides	Acids, Strong Bases
Nitrates	Acids, Reducing Agents
Nitrites	Acids, Oxidizing Agents
Sulfides	Acids
ORGANIC CHEMICALS	
Organic Compounds	Oxidizing Agents
Organic Acyl Halides and Anhydrides	Bases, Organic Hydroxy and Amino Compounds
Organic Halogen Compounds	Group IA and IIA Metals, Aluminum
Organic Nitro Compounds	Strong Bases
CORROSIVE CHEMICALS	
Oxidizing Agents	Reducing Agents
Chlorates, Chromates, Chromium Trioxide, Dichromates, Halogens, Halogenating Agents, Hydrogen Peroxide, Nitric Acid, Nitrates, Perchlorates, Peroxides, Permanganates, Persulfates	Ammonia (anhydrous and aqueous), Carbon, Metals, Metal Hydrides, Nitrites, Organic Compounds, Phosphorus, Silicon, Sulfur

[1]The information in this table was taken from *Prudent Practices for Handling and Disposal of Chemicals in the Laboratory*. National Academy Press, 1995.

Handling Procedures for Selected Groups of Chemicals

Additional safety procedures should be used when handling the following commonly used groups of chemicals:

Peroxidizable compounds (ethers) are a group of chemicals which become shock sensitive when they form organic peroxides. This reaction is catalyzed by changes in sunlight, temperature, and pressure. Store these compounds airtight and in their original containers, ideally with an inert gas such as nitrogen in the headspace (the area above the liquid in the bottle). Isolate these chemicals from combustible and oxidizable materials, preferably in a flammable storage cabinet. Some examples of peroxidizable compounds can be found in *Table II.*

***Table II* Selected Peroxidizable Compounds[1]**

CLASS I[2]	
Acrylic Acid	Tetrafluoroethylene
Acrylonitrile	Vinyl Acetate
Butadiene	Vinyl Chloride
Chlorobutadiene (Chloroprene)	Vinyl Acetylene
Chlorotrifluoroethylene	Vinyl Pyridine
Methyl Methacrylate	Vinylidene Chloride

CLASS II[3]	
Acetal	Dioxane (p-Dioxane)
Cumene	Ethylene Glycol Dimethyl Ether (Glyme)
Cyclohexene	Furan
Cyclooctene	Methyl Acetylene
Cyclopentene	Methyl Cyclopentane
Diacetylene	Methyl-i-butyl Ketone
Diethylene Glycol Dimethyl Ether (Diglyme)	Tetrahydronaphthalene
Diethyl Ether	Vinyl ethers

CLASS III[4]	
Organic	**Inorganic**
Divinyl Ether	Potassium Metal
Divinyl Acetylene	Potassium Amide
Isopropyl Ether	Sodium Amide (Sodamide)

[1]The information in this table is courtesy of the Emergency Technical Services Corporation of Schaumburg, Illinois.
[2]Unsaturated materials, especially those of low molecular weight, may polymerize violently and hazardously due to peroxide initiation.
[3]These chemicals are a peroxide hazard upon concentration (distillation/evaporation). A test for peroxide should be performed if concentration is intended or suspected.
[4]Peroxides derived from the listed compounds may explode without being concentrated.

Ethers should be purchased in amounts and container sizes appropriate to the intended use and dated upon receipt. Once opened, a container should be used within six months. Even unopened containers should be disposed through **EHS** after one year.

Flammable liquids generate vapors that can readily ignite and burn in air. The rate at which different liquids produce flammable vapors depends on their vapor pressure and temperature. These substances should be stored separately from oxidizers and corrosive materials and in a flammable storage cabinet if available in the work area.

Storage of flammable liquids (including waste) outside approved flammable storage cabinets and safety cans must not exceed 10 gallons per 100 square feet of laboratory space. See *Table III* for storage limitations imposed by OSHA and NFPA.

***Table III* Flammable and Combustible Liquid Storage Limits for Laboratories[1]**

Laboratory Unit Class	Flammable or Combustible Liquid Class	*Excluding* Quantities in Storage Cabinets[2] or Safety Cans: Maximum Quantity[3] per 100 sq ft of Laboratory Unit	*Including* Quantities in Storage Cabinets[2] or Safety Cans: Maximum Quantity[3] per 100 sq ft of Laboratory Unit
A[4]	I	10 gallons	20 gallons
(High Hazard)	I, II, and IIIA	20 gallons	40 gallons
B	I	5 gallons	10 gallons
(Intermediate Hazard)	I, II, and IIIA	10 gallons	20 gallons
C	I	2 gallons	4 gallons
(Low Hazard)	I, II, IIIA	4 gallons	8 gallons

[1]The information in this table was taken from the NFPA 45 standard on *Fire Protection for Laboratories Using Chemicals,* 1996.
[2]Only *Approved Storage Cabinets* as defined by NFPA 45 are allowed by **EHS**.
[3]The maximum quantities of flammable and combustible liquids in Class B and Class C instructional laboratory units shall be 50 percent of those listed.
[4]Class A laboratory units shall not be used as instructional laboratory units.

Corrosive chemicals include strong acids and bases, dehydrating agents, and oxidizing agents. Inhalation of vapors or mists from these substances can cause severe bronchial irritation. These chemicals also erode the skin and respiratory epithelium and are particularly damaging to the eyes. Corrosive chemicals should be stored in corrosion resistant cabinets, and separated from other reagents. Acids should be stored separately from bases and both should be stored separately from flammables and combustibles.

Oxidizing agents, in addition to their corrosive properties, can present fire and explosion hazards on contact with organic compounds or other oxidizable substances. Strong oxidizing agents (see *Table IV*) should be stored and used in glass or other inert containers. Cork and rubber stoppers should not be used with these substances.

***Table IV* Examples of Oxidizing Agents[1]**

Gases:	Fluorine, Chlorine, Ozone, Nitrous Oxide, Steam, Oxygen
Liquids:	Hydrogen Peroxide, Nitric Acid, Perchloric Acid, Bromine, Sulfuric Acid, Water
Solids:	Nitrites, Nitrates, Perchlorates, Peroxides, Chromates, Dichromates, Picrates, Permanganates, Hypochlorites, Bromates, Iodates, Chlorites, Chlorates

[1]The information in this table was taken from *Prudent Practices in the Laboratory: Handling and Disposal of Chemicals.* National Academy Press, 1995.

Highly reactive chemicals are inherently unstable and can react in an uncontrolled manner to liberate heat and toxic gases, which can lead to explosion. These include shock sensitive chemicals, high energy oxidizers, and peroxide formers. Before using these materials, safety information should be reviewed to evaluate proper storage and handling procedures.

The following additional procedures are recommended for handling reactive chemicals:

! Secure reaction equipment properly.

! Use impact protection (shields and guards) in addition to chemical splash protection (eye protection,

gloves, laboratory coat, etc.).

! Handle shock-sensitive chemicals gently to avoid friction, grinding, and impact.

Crossover properties. Many chemicals found in the laboratory exhibit properties common to more than one of the previously mentioned groups (for example, ether). For each chemical, one should simultaneously follow the safety guidelines for all applicable hazard groups. Contact **EHS** for additional information about the storage of a specific chemical.

Extremely Hazardous Chemicals

Certain chemicals have been identified as causing acute and/or chronic health effects. Substances of high acute toxicity cause *immediate* health effects at very low concentrations. Some examples of chemicals with high acute toxicity include the gases hydrogen cyanide, phosgene, and arsine (see *Table V* for additional examples). Substances that have high chronic toxicity may cause adverse health effects after repeated exposure over a period of time. These may include carcinogens, reproductive toxins, mutagens, and sensitizers.

The Principal Investigator (PI) bears the responsibility for the safe use of extremely hazardous chemicals in the laboratory. Researchers must create a *Designated Area* (see definition in the glossary) in the laboratory which is physically separated and visually labeled with appropriate warnings. Access to the Designated Area must be strictly controlled. Engineering controls (such as fume hoods and biosafety cabinets) must also be located in this Area.

Table V **Examples of Extremely Hazardous Chemicals**[1]

Acrolein	Nickel Carbonyl
Arsine	Nitrogen Dioxide
Chlorine	Osmium Tetroxide
Diazomethane	Ozone
Diborane (gas)	Phosgene
Hydrogen Cyanide	Sodium Azide
Hydrogen Fluoride	Sodium Cyanide
Methyl Fluorosulfonate	Other Cyanide Salts

[1]The information in this table was taken from *Prudent Practices in the Laboratory: Handling and Disposal of Chemicals.* National Academy Press, 1995.

Standard Operating Procedure (SOP)

The PI using extremely hazardous chemicals will be responsible for submitting a Standard Operating Procedure (SOP) to **EHS** for review and approval before this Designated Area can become active. The SOP must outline the methods that will be used, the proper handling of chemicals in the Designated Area and access restrictions to this Area. Researchers can use the general SOP format described in the section of the Manual on Standard Operating Procedures to create this document. Contact **EHS** with additional questions or concerns.

Labeling

All containers (including beakers, vials, flasks, etc.) must be labeled with the chemical constituent(s) and other relevant information. This includes dilute as well as stock solutions. Whenever possible, chemicals should remain

in their original containers with the original labels intact. If a chemical is transferred from its original container, the new container must have the name of the chemical and other relevant information. Damaged or faded labels must be replaced *before* becoming illegible. Additional information on labeling requirements can be found in the Univerity's Right to Know and Hazard Communication Policy.

Waste Disposal

All chemical waste must be disposed according to the policies and procedures for hazardous materials management. See the section on Hazardous (Chemical) Waste Disposal Procedures for more information.

Spills

Each laboratory must maintain a *spill control kit* appropriate for the varieties and quantities of chemicals in that laboratory. This kit must be labeled and accessible. For more information on chemical spill control, see the section on the Management of Spills.

UNIVERSITY OF MIAMI

CHEMICAL WASTE DISPOSAL FORM

Department: _____ Contact Person: _____

P.I.: _____ Phone Number: _____

☐ I have an Open IDR with EHS I have a Satellite Accumulation Area ☐ I need an SAA ☐

Location: Campus: _____ Building: _____ Room #: _____

Pickup Comments: _____

For questions, contact Environmental Health and Safety at 305-243-3400

Instructions:

- Label all containers.
- Label waste containers with the proper chemical name (no chemical formulas or trade names).
- If the contents are a mixed waste, label container with the two main constituents.
- Always place used chemicals in the appropriate, compatible container.
- For Unknown chemicals, annotate on inventory as either unknown solid or liquid with the amount.
- Complete form and either submit by E-mail to:
  - EHSChemicalWaste@med.miami.edu
  - or fax to the EH&S office (**Fax # 305-243-3272**).

C= Corrosive **F**= Flammable **O**= Oxidizer **W**= Air/Water Reactive **T**= Toxic

	Hazard Category	Chemical	Containers	x	Size	Units	Liquid	Solid
	F	Xylene / Alcohol	1	x	5	gallons	☑	☐
1).				x			☐	☐
2).				x			☐	☐
3).				x			☐	☐
4).				x			☐	☐
5).				x			☐	☐
6).				x			☐	☐
7).				x			☐	☐
8).				x			☐	☐
9).				x			☐	☐
10).				x			☐	☐

UNIVERSITY OF Miami

MEMORANDUM

TO: Principal Investigators,
Laboratory Directors, and
Other individuals using and storing chemicals.

FROM: Kenneth P. Capezzuto, MS, CHMM, Director KC

DATE: August 28, 2007

SUBJECT: Disposal of surplus and inherently waste-like chemicals

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As you are likely aware, the Environmental Protection Agency (EPA) has undertaken a compliance initiative directed toward colleges and universities throughout the country. The result in every case has been a large fine assessed against the institution for various violations of the EPA regulations. Examples of the more severe regulatory action within the past eight years include:

University of Hawaii	$1,700,000.00
University of Michigan	$1,000,000.00
University of Rhode Island	$ 800,000.00
Boston University	$ 753,000.00
University of Missouri, Columbia	$ 582,000.00

A violation consistently cited has been the excessive accumulation of stored chemicals in laboratories, especially those that the EPA considers "**inherently waste-like**". Inherently waste-like means **1) old chemicals, 2) chemicals with deteriorating labels, damaged containers or 3) chemicals with a layer of dust on the container.**

I am requesting that you, as a person responsible for chemicals in a laboratory, review the inventory of chemicals stored in your laboratory and dispose of all those chemicals, through our office (EHS), which fit the above description of inherently waste-like.

To arrange for chemical pickup and disposal, please contact the Office of Environmental Health and Safety (EHS) at 305 243-3400. The waste disposal form can be found on our EHS website (www.miami.edu/ehs) at (www.miami.edu/health-safety/ChemWaste.pdf).

P.O. Box 016960
Miami, Florida 33101, USA
305-243-3400
Fax: 305-243-3272

Office of Environmental Health and Safety (R-23)

Suite 405
Dominion Tower
1400 N.W. 10th Avenue
Miami, Florida 33136

Overview of the Employee Health Office Mandatory Requirements

1) TB Screening

For all employees working on the medical campus; having contact with patients on a routine basis; working in areas where the ventilation is shared with patient care areas; and working with human subjects from high prevalence groups in research or clinical trials.

TB screening is done on Monday, Tuesday and Wednesday from 9:00 AM - 1:00 PM.

NO TB screening is done on Thursday and Friday due to the weekend. NO APPOINTMENT IS NECESSARY. If these times are inconvenient, please contact Employee Health Office at (305) 243-3400.

2) Hepatitis B Vaccination

The hepatitis B Vaccine is offered to employees who have contact with blood or other potentially infectious materials. The department will be charged for the vaccine and the Hepatitis B Titer Level. The complete series consists of three vaccines and a titer level. In rare cases, the series may have to be repeated and another titer level done.

The schedule is as follows:

Day One: Dose 1
In one month: Dose 2
5 months from Dose 2: Dose 3
2 months from Dose 3: Titer level.

Please note: According to OSHA's Bloodborne Pathogens Standard 29CFR 1910.1030 "Hepatitis B vaccination shall be made available after the employee has received the training and within 10 working days of initial assignment to all employees who have occupational exposure unless the employee has previously received the complete hepatitis B vaccination series, antibody testing has revealed that the employee is immune, or the vaccine is contraindicated for medical reasons."

3) Training: Please ensure that the employee completes the required training as scheduled.

- **Bloodborne Pathogens, Biomedical Waste, TB, Latex Allergy Initial Training**

For employees who have contact with blood or other potentially infectious materials.

The supervisor completes the EHS training checklist. The training checklist will be forwarded to both EHS and Professional Development and Training Office (PDTO) by Human Resources. PDTO will then notify the supervisor of the training dates for the employee.

An annual update (Bloodborne Pathogens, Biomedical Waste, TB, and Latex Allergy ANNUAL Update) is due every twelve months thereafter. Call PDTO at 305-243-3090 to register for training or register ON-LINE at www.miami.edu/development-training

- **Occupational Health and Safety Training**

For employees whose work duties involve contact with research animals. This is an ON-LINE Training. Register for the Occupational Health and Safety Training at www.miami.edu/acucreg. This training is repeated every three years.

4) Contact with Research Animals

For all employees whose job duties involve contact with research animals.

First, complete the Acknowledgement Form. If the employee ACCEPTS Participation, then the following additional forms are required:

Baseline Medical Surveillance Questionnaire Form and the Consent Form for Occupational Health Program.

If the employee DECLINES Participation only the Acknowledgement Form is required.

Retrieve forms at www.miami.edu/employee-health. Forward these forms to the Employee Health Office and a copy of the Acknowledgement form to ACUC. These forms are completed ONCE unless there is A) a change in the hazards or animals to which you are exposed; B) change in your health status; C) you previously declined and would like to accept participation or vice-versa.

5) Respirator Use

Contact Environmental Health and Safety at 305-243-3400 for guidance regarding respiratory protection requirements. An employee must be fit tested and trained prior to wearing the N95 respirator (e.g. for contact with TB or SARS patients) and annually thereafter.

The following steps explain this process:

1st: A Respirator Medical Evaluation Questionnaire (retrieve form at www.miami.edu/employee-health) is completed by the employee and then forwarded to Employee Health Office.

2nd: After review of this questionnaire it will be determined if the employee is approved for fit testing or require further medical evaluation such as a physical exam. The employee may be referred to an occupational medicine physician. If this occurs, the department will be charged for this evaluation.

3rd: If the employee is approved for fit testing they are required to attend a training class in the use of the respirator and then scheduled for fit testing. Please note: Fit testing and Training in the use of the respirator is done annually.

p- LISTED HAZARDOUS WASTES

Hazardous Waste #	CAS #	Substance
P023	107-20-0	Acetaldehyde, chloro-
P002	591-08-2	Acetamide, N-(aminothioxomethyl)-
P057	640-19-7	Acetamide, 2-fluoro-
P058	62-74-8	Acetic acid, fluoro-, sodium salt
P002	591-08-2	1-Acetyl-2-thiourea
P003	107-02-8	Acrolein
P070	116-06-3	Aldicarb
P203	1646-88-4	Aldicarb sulfone.
P004	309-00-2	Aldrin
P005	107-18-6	Allyl alcohol
P006	20859-73-8	Aluminum phosphide (R,T)
P007	2763-96-4	(Aminomethyl)-3-isoxazolol
P008	504-24-5	Aminopyridine
P009	131-74-8	Ammonium picrate (R)
P119	7803-55-6	Ammonium vanadate
P099	506-61-6	Argentate(1-), bis(cyano-C)-, potassium
P010	7778-39-4	Arsenic acid H_3AsO_4
P012	1327-53-3	Arsenic oxide $As_2 O_3$
P011	1303-28-2	Arsenic oxide $As_2 O_5$
P011	1303-28-2	Arsenic pentoxide
P012	1327-53-3	Arsenic trioxide
P038	692-42-2	Arsine, diethyl-
P036	696-28-6	Arsonous dichloride, phenyl-
P054	151-56-4	Aziridine
P067	75-55-8	Aziridine, 2-methyl-
P013	542-62-1	Barium cyanide
P024	106-47-8	Benzenamine, 4-chloro-
P077	100-01-6	Benzenamine, 4-nitro-
P028	100-44-7	Benzene, (chloromethyl)-
P042	51-43-4	1,2-Benzenediol, 4-[1-hydroxy-2- (methylamino)ethyl]-, (R)-
P046	122-09-8	Benzeneethanamine, alpha,alpha- dimethyl-
P014	108-98-5	Benzenethiol
P127	1563-66-2	7-Benzofuranol, 2,3-dihydro-2,2- dimethyl-, methylcarbamate.
P188	57-64-7	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a- hexahydro- 1,3a,8-rimethylpyrrolo[2,3-b]indol-5- yl methylcarbamate ester (1:1).
P001	[1]81-81-2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3- oxo-1-phenylbutyl)-, & salts, when present at concentrations greater than 0.3%
P028	100-44-7	Benzyl chloride
P015	7440-41-7	Beryllium powder
P017	598-31-2	Bromoacetone
P018	357-57-3	Brucine
P045	39196-18-4	2-Butanone, 3,3-dimethyl-1- (methylthio)-, O-[methylamino)carbonyl] oxime
P021	592-01-8	Calcium cyanide
P021	592-01-8	Calcium cyanide $Ca(CN)_2$
P189	55285-14-8	Carbamic acid, [(dibutylamino)- thio]methyl-, 2,3-dihydro-2,2- dimethyl- 7-benzofuranyl ester.
P191	644-64-4	Carbamic acid, dimethyl-, 1-[(dimethyl- amino)carbonyl]- 5-methyl-1H- pyrazol- 3-yl ester.
P192	119-38-0	Carbamic acid, dimethyl-, 3-methyl-1- (1-methylethyl)-1H- pyrazol-5-yl ester.
P190	1129-41-5	Carbamic acid, methyl-, 3-methylphenyl ester.

Hazardous Waste #	CAS #	Substance
P127	1563-66-2	Carbofuran.
P022	75-15-0	Carbon disulfide
P095	75-44-5	Carbonic dichloride
P189	55285-14-8	Carbosulfan
P023	107-20-0	Chloroacetaldehyde
P024	106-47-8	p-Chloroaniline
P026	5344-82-1	1-(o-Chlorophenyl)thiourea
P027	542-76-7	3-Chloropropionitrile
P029	544-92-3	Copper cyanide
P029	544-92-3	Copper cyanide Cu(CN)
P202	64-00-6	m-Cumenyl methylcarbamate
P030	……	Cyanides (soluble cyanide salts), not otherwise specified
P031	460-19-5	Cyanogen
P033	506-77-4	Cyanogen chloride
P033	506-77-4	Cyanogen chloride (CN)Cl
P034	131-89-5	2-Cyclohexyl-4,6-dinitrophenol
P016	542-88-1	Dichloromethyl ether
P036	696-28-6	Dichlorophenylarsine
P037	60-57-1	Dieldrin
P038	692-42-2	Diethylarsine
P041	311-45-5	Diethyl-p-nitrophenyl phosphate
P040	297-97-2	O,O-Diethyl O-pyrazinyl phosphorothioate
P043	55-91-4	Diisopropylfluorophosphate (DFP)
P004	309-00-2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa- chloro- 1,4,4a,5,8,8a,-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8 abeta)- 1 1 1
P060	465-73-6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa- chloro- 1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8ab eta)-
P037	60-57-1	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6a alpha,7beta, 7aalpha)-
P051	[1]72-20-8	2,7:3,6-Dimethanonaphth [2,3- b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6 abeta,7beta, 7aalpha)-, & metabolites
P044	60-51-5	Dimethoate
P046	122-09-8	alpha,alpha-Dimethylphenethylamine
P191	644-64-4	Dimetilan.
P047	[1]534-52-1	4,6-Dinitro-o-cresol, & salts
P048	51-28-5	2,4-Dinitrophenol
P020	88-85-7	Dinoseb
P085	152-16-9	Diphosphoramide, octamethyl-
P111	107-49-3	Diphosphoric acid, tetraethyl ester
P039	298-04-4	Disulfoton
P049	541-53-7	Dithiobiuret
P185	26419-73-8	1,3-Dithiolane-2-carboxaldehyde, 2,4- dimethyl-, O- [(methylamino)-carbonyl]oxime.
P050	115-29-7	Endosulfan
P088	145-73-3	Endothall
P051	72-20-8	Endrin
P051	72-20-8	Endrin, & metabolites
P042	51-43-4	Epinephrine
P031	460-19-5	Ethanedinitrile
P194	23135-22-0	Ethanimidothioc acid, 2- (dimethylamino)-N-[[(methylamino) carbonyl]oxy]-2- oxo-, methyl ester
P066	16752-77-5	Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester
P101	107-12-0	Ethyl cyanide

Hazardous Waste #	CAS #	Substance
P054	151-56-4	Ethyleneimine
P097	52-85-7	Famphur
P056	7782-41-4	Fluorine
P057	640-19-7	Fluoroacetamide
P058	62-74-8	Fluoroacetic acid, sodium salt
P198	23422-53-9	Formetanate hydrochloride.
P197	17702-57-7	Formparanate
P065	628-86-4	Fulminic acid, mercury(2+) salt (R,T)
P059	76-44-8	Heptachlor
P062	757-58-4	Hexaethyl tetraphosphate
P116	79-19-6	Hydrazinecarbothioamide
P068	60-34-4	Hydrazine, methyl-
P063	74-90-8	Hydrocyanic acid
P063	74-90-8	Hydrogen cyanide
P096	7803-51-2	Hydrogen phosphide
P060	465-73-6	Isodrin
P192	119-38-0	Isolan.
P202	64-00-6	-Isopropylphenyl N-methylcarbamate.
P007	2763-96-4	3(2H)-Isoxazolone, 5-(aminomethyl)-
P196	15339-36-3	Manganese, bis(dimethylcarbamodithioato-S,S')-,
P196	15339-36-3	Manganese dimethyldithiocarbamate.
P092	62-38-4	Mercury, (acetato-O)phenyl-
P065	628-86-4	Mercury fulminate (R,T)
P082	62-75-9	Methanamine, N-methyl-N-nitroso-
P064	624-83-9	Methane, isocyanato
P016	542-88-1	Methane, oxybis[chloro-
P112	509-14-8	Methane, tetranitro- (R)
P118	75-70-7	Methanethiol, trichloro-
P198	23422-53-9	Methanimidamide, N,N-dimethyl-N'-[3- [[(methylamino)-carbonyl]oxy]phenyl]- ,mnohydrochloride.
P197	17702-57-7	Methanimidamide, N,N-dimethyl-N'-[2- methyl-4- [[(methylamino)carbonyl]oxy]phenyl]-
P050	115-29-7	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10- hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide
P059	76-44-8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8- heptachloro- 3a,4,7,7a-tetrahydro-
P199	2032-65-7	Methiocarb.
P066	16752-77-5	Methomyl
P068	60-34-4	Methyl hydrazine
P064	624-83-9	Methyl isocyanate
P069	75-86-5	2-Methyllactonitrile
P071	298-00-0	Methyl parathion
P190	1129-41-5	Metolcarb.
P128	315-8-4	Mexacarbate.
P072	86-88-4	alpha-Naphthylthiourea
P073	13463-39-3	Nickel carbonyl
P073	13463-39-3	Nickel carbonyl $Ni(CO)_4$, (T-4)-
P074	557-19-7	Nickel cyanide
P074	557-19-7	Nickel cynaide $Ni(CN)_2$
P075	[1]54-11-5	Nicotine, & salts
P076	10102-43-9	Nitric oxide
P077	100-01-6	p-Nitroaniline
P078	10102-44-0	Nitrogen dioxide

Hazardous Waste #	CAS #	Substance
P076	10102-43-9	Nitrogen oxide NO
P078	10102-44-0	Nitrogen oxide NO_2
P081	55-63-0	Nitroglycerine (R)
P082	65-75-9	N-Nitrosodimethylamine
P084	4549-40-0	N-Nitrosomethylvinylamine
P085	152-16-9	Octamethylpyrophosphoramide
P087	20816-12-0	Osmium oxide OsO_4, (T-4)-
P087	20816-12-0	Osmium tetroxide
P088	145-73-3	7-Oxabicyclo[2.2.1]heptane-2,3- dicarboxylic acid
P194	23135-22-0	Oxamyl.
P089	56-38-2	Parathion
P034	131-89-5	Phenol, 2-cyclohexyl-4,6-dinitro-
P048	51-28-5	Phenol, 2,4-dinitro- P047 \1\534-52-1 Phenol, 2-methyl-4,6-dinitro-, & salts
P047	[1]534-52-1	Phenol, 2-methyl-4, 6-dinitro-, & salts
P020	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-
P009	131-74-8	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P128	315-18-4	Phenol, 4-(dimethylamino)-3,5-dimethyl- , methylcarbamate (ester).
P199	2032-65-7	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate.
P202	64-00-6	Phenol, 3-(1-methylethyl)-, methyl carbamate
P201	2631-37-0	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate.
P092	62-38-4	Phenylmercury acetate
P093	103-85-5	Phenylthiourea
P094	298-02-2	Phorate
P095	75-44-5	Phosgene
P096	7803-51-2	Phosphine
P041	311-45-5	Phosphoric acid, diethyl 4-nitrophenyl ester
P039	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester
P094	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester
P044	60-51-5	Phosphorodithioic acid, O,O-dimethyl S- [2-(methylamino)-2-oxoethyl] ester
P043	55-91-4	Phosphorofluoridic acid, bis(1- methylethyl) ester
P089	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4- nitrophenyl) ester
P040	297-97-2	Phosphorothioic acid, O,O-diethyl O- pyrazinyl ester
P097	52-85-7	Phosphorothioic acid, O-[4- [(dimethylamino)sulfonyl]phenyl] O,O- dimethyl ester
P071	298-00-0	Phosphorothioic acid, O,O,-dimethyl O- (4-nitrophenyl) ester
P204	57-47-6	Physostigmine.
P188	57-64-7	Physostigmine salicylate.
P110	78-00-2	Plumbane, tetraethyl-
P098	151-50-8	Potassium cyanide
P098	151-50-8	Potassium cyanide K(CN)
P099	506-61-6	Potassium silver cyanide
P201	2631-37-0	Promecarb
P070	116-06-3	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime
P203	1646-88-4	Propanal, 2-methyl-2-(methyl-sulfonyl)- , O-[(methylamino)carbonyl] oxime.
P101	107-12-0	Propanenitrile
P027	542-76-7	Propanenitrile, 3-chloro-
P069	75-86-5	Propanenitrile, 2-hydroxy-2-methyl-
P081	55-63-0	1,2,3-Propanetriol, trinitrate (R)
P017	598-31-2	2-Propanone, 1-bromo-
P102	107-19-7	Propargyl alcohol
P003	107-02-8	2-Propenal
P005	107-18-6	2-Propen-1-ol

Hazardous Waste #	CAS #	Substance
P067	75-55-8	1,2-Propylenimine
P102	107-19-7	2-Propyn-1-ol
P008	504-24-5	4-Pyridinamine
P075	[1]54-11-5	Pyridine, 3-(1-methyl-2-pyrrolidinyl)- , (S)-, & salts
P204	57-47-6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8- trimethyl-, methylcarbamate (ester), (3aS-cis)-.
P114	12039-52-0	Selenious acid, dithallium(1+) salt
P103	630-10-4	Selenourea
P104	506-64-9	Silver cyanide
P104	506-64-9	Silver cyanide Ag(CN)
P105	26628-22-8	Sodium azide
P106	143-33-9	Sodium cyanide
P106	143-33-9	Sodium cyanide Na(CN)
P108	[1]57-24-9	Strychnidin-10-one, & salts
P018	357-57-3	Strychnidin-10-one, 2,3-dimethoxy-
P108	[1]57-24-9	Strychnine, & salts
P115	7446-18-6	Sulfuric acid, dithallium(1+) salt
P109	3689-24-5	Tetraethyldithiopyrophosphate
P110	78-00-2	Tetraethyl lead
P111	107-49-3	Tetraethyl pyrophosphate
P112	509-14-8	Tetranitromethane (R)
P062	757-58-4	Tetraphosphoric acid, hexaethyl ester
P113	1314-32-5	Thallic oxide
P113	1314-32-5	Thallium oxide Tl_2O_3
P114	12039-52-0	Thallium(I) selenite
P115	7446-18-6	Thallium(I) sulfate
P109	3689-24-5	Thiodiphosphoric acid, tetraethyl ester
P045	39196-18-4	Thiofanox
P049	541-53-7	Thioimidodicarbonic diamide $[(H_2N)C(S)]_2NH$
P014	108-98-5	Thiophenol
P116	79-19-6	Thiosemicarbazide
P026	5344-82-1	Thiourea, (2-chlorophenyl)-
P072	86-88-4	Thiourea, 1-naphthalenyl-
P093	103-85-5	Thiourea, phenyl-
P185	26419-73-8	Tirpate.
P123	8001-35-2	Toxaphene
P118	75-70-7	Trichloromethanethiol
P119	7803-55-6	Vanadic acid, ammonium salt
P120	1314-62-1	Vanadium oxide V_2O_5
P120	1314-62-1	Vanadium pentoxide
P084	4549-40-0	Vinylamine, N-methyl-N-nitroso-
P001	[1]81-81-2	Warfarin, & salts, when present at concentrations greater than 0.3%
P205	137-30-4	Zinc, bis(dimethylcarbamodithioato- S,S')-,
P121	557-21-1	Zinc cyanide
P121	557-21-1	Zinc cyanide $Zn(CN)_2$
P122	1314-84-7	Zinc phosphide Zn_3P_2, when present at concentrations greater than 10% (R,T)
P205	137-30-4	Ziram.

[1] CAS Number given for parent compound only.

UNIVERSITY OF MIAMI

D020 - **EMPTY CONTAINER DISPOSAL**

A. Purpose: To establish required practices for the disposal of empty containers and drums so as to comply with federal, state, and local regulations.

B. Scope: This policy applies to all facilities at the University of Miami.

C. Definitions:
The following policy applies to empty containers that previously contained a liquid chemical product.

1. The empty containers should be handled for disposal according to the previous contents. The definition of a hazardous waste is stated in 40 CFR 261.3. A substance is a hazardous waste if it displays the characteristics stated in Subpart C of ignitability, reactivity, corrosivity, EP toxicity, or is listed in 40 CFR 261.31, 261.32, or 261.33.
2. A container that has held any hazardous waste, except a waste that is a compressed gas or that is identified as an acute hazardous waste listed in 40 CFR 261.31, 261.32, 261.33(e) is considered empty (40 CFR 261.7) if:
(i) All wastes have been removed that can be removed by pouring, pumping, and aspirating, and
(ii) No more than one inch of residue remain on the bottom of the container, or
(iii) No more than 3 percent by weight of the total capacity of the container remains in the container if the container is less than or equal to 110 gallons.
3. A container that has held an acute hazardous waste listed in 40 CFR 261.31, 261.32, or 261.33(e) is empty if:
(i) The container has been triple rinsed using a solvent capable of removing the commercial chemical product or manufacturing intermediate;
(ii) The container has been cleaned by another method that has been shown in the scientific literature, or by tests by the generator, to achieve equivalent removal; or
(iii) The inner liner that prevented contact of the commercial chemical product or manufacturing intermediate with the container, has been removed.

D. Procedure:

1. Empty containers that are considered nonhazardous by definition (i.e., not included in 40 CFR 261.3) should be disposed by one of the following recommended procedures:
(i) Store drums for collection by a drum recycling company.
(ii) Using proper tools, cut both ends off the drum, cut the drum in half, and dispose of in the appropriate industrial waste bin.
(iii) Empty containers that are 5 gallons or less should be rinsed and the rinsate added to a compatible used chemical container. Deface empty container of all markings. Dispose in regular trash. All glass containers (whether broken or not) should be placed in a cardboard box, taped, and marked "**Broken Glass**", and disposed in regular trash.
2. Empty drums that have contained hazardous material are considered hazardous waste by definition must be disposed as hazardous waste. Contact the Office of Environmental Health and Safety with information on the drum content for instructions on proper disposal.

ENVIRONMENTAL HEALTH AND SAFETY, 305-243-3400
revised 7-18-2002
Content Last Modified on February 24, 2004

University of Miami
Business and Finance
P.O. Box 248106
Coral Gables, FL 33124
Telephone: 305-284-5550

Waste Satellite Accumulation Training
ACKNOWLEDGEMENT FORM

The below-signed personnel have reviewed and understand the information contained on the Satellite Accumulation Area (SAA).

Date: ___/___/_____Campus:_____

Building: _____

Room #:_____

A Hazardous Materials representative presented the information from the Office of Environmental Health & Safety (EHS). All questions concerning the proper waste-handling and emergency procedures relevant to this SAA were answered. For additional information, contact Environmental Health & Safety at (305) 243-3400 or visit our web site at www.miami.edu/ehs.

Print Name:	**Signature:**	**University I.D.:#**
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