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GEORGIA ENVIRONMENTAL PROTECTION DIVISION

HAZARDOUS WASTE MANAGEMENT BRANCH

DISPOSAL OF LABORATORY WASTES IN LAB. PACKS

DEPARTMENT OF NATURAL RESOURCES

Revised
NOVEMBER 1992

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TABLE OF CONTENTS

REGULATORY STATUS

The Georgia Rules for Hazardous Waste Management, Chapter 391-3-11-.10, Part 265.316, describe disposal requirements for laboratories generating small quantities of a great many chemical wastes. If a laboratory accumulates a total waste quantity of less than 100 kilograms in one month it will be exempt, and this quantity may be disposed of at a permitted sanitary landfill provided the operator will accept it. For any waste defined as "acutely hazardous" [e.g., chlorinated dioxin and furan wastes, and wastes from Part 261.33(e)], only 1 kilogram may be accumulated in one month to be exempt (see page 28). Any test samples themselves are exempt from regulation according to the conditions of Part 261.4(d)(1).

An exempt generator can continue to accumulate exempt quantities of waste over a period of months, if he chooses, and still remain exempt. However, when the total accumulated quantity reaches 1000 kg, he becomes a "small quantity generator" and must comply with those special rules. The waste must be manifested when shipped, he must apply for a permit within 6 months, and there are record keeping requirements in the regulations. (See Part 261.5)

If the laboratory generates more than 100 kg and less than 1000 kg of waste in one month, it becomes a "small quantity generator" from the start and must comply with the special rules. These quantities can also be accumulated over a period of several months up to a total of 6000 kg, at which time the laboratory becomes a full generator. (See Part 262.34)

Please note that for "acutely hazardous" waste, any accumulated quantity above the 1 kg limit is fully regulated.

LAB PACK DEFINITION

The Lab Pack Method is a means of "overpacking" to produce a drum which is safe for shipment. Each waste unit is surrounded by inert, absorbent material such as vermiculite or kitty litter sufficient to absorb the waste in the event of damage. (See page 6)

ALTERNATIVES

1. The laboratory may choose to call in a professional hazardous waste handler who will take over the entire job for a fee. Please refer to some known handlers under "Sources of Help," page 47.

2. The laboratory may undertake assembly of its own Lab Pack. In either case, the laboratory becomes a generator, must have a generator I.D. number, manifest the shipment, and be responsible for safe disposal.

PROCEDURE

1. Each bottle or can of chemical waste must be tightly and securely sealed.

2. The container must not break, or decompose by action of the contents. It is advisable to place these special bottles or cans in a larger inert container before packing (such as paint can), and surround the bottle with vermiculite.

3. These waste units must be packed into a separate open head 55- to 110-gallon steel drum and surrounded by vermiculite or inert absorbent material to the top of the drum. The U.S. Department of Transportation specifies the type of steel drum in 49 CFR Parts 178 and 179. Absorbent must be sufficient to completely absorb the contents. If the lab pack is destined for special incineration, a fiber drum may be used.

4. Only wastes which will not react with each other in the event of damage may be placed in one drum. (See page 21)

5. The packed and sealed drums must be labeled according to DOT regulations contained in 40 CFR Parts 171, 172, 173, 176 and 177. The table provided in 172.101 shows the hazard class and label required. For information and guidance please call USDOT, Mr. Tom Dunaway, Coordinator, Telephone: (404)347-4049.

6. Chapter 391-3-11-.08 requires that the laboratory must apply for an Identification Number and prepare a manifest for the shipment of the drums. Please contact the Georgia EPD at (404)656-2833. The manifest will be supplied by the facility which receives the waste for treatment and disposal.

7. Professional transporters of hazardous waste are listed in the telephone directory. The generator must assure that the one selected has an Identification Number. The Georgia EPD can supply lists of those who have applied. Please call (404)656-2833.

LIMITATIONS

1. Part 265.312 states that ignitable or reactive waste must not be placed in a landfill. It must first be treated so that it is no longer ignitable or reactive. The permitted disposal facility may operate an approved hazardous waste incinerator and advise you accordingly.

   Ignitable waste has a flash point of less than 140°F.

   Reactive waste is the type that is violent on contact with water, or emits toxic fumes in water, or can detonate when heated, or violently decompose at standard temperature and pressure.

2. Part 265.313 states that incompatible wastes must not be placed in the same landfill cell. Part 265.17(b) defines a special exception if:

   (1) The wastes cannot generate heat or violent reaction, and
   (2) The wastes cannot produce toxic or flammable vapors, and
   (3) The wastes cannot damage the container in which they are held.

3. Part 265.316 states that reactive and incompatible wastes must not be placed in the same Lab Pack. Please consult the "Incompatible Chemical Guidelines," page 21, and separate the wastes. They should be divided as ignitables, oxidizers, toxics, corrosives, etc. Reactive wastes must be treated if possible. Some reactive wastes are restricted by U.S. DOT for transportation. (See page 4)

4. Explosives:

   All materials capable of detonation or sudden violent, spontaneous reaction must be set aside. Please refer to a partial list provided, page 43. These wastes may be handled by calling the Federal Bureau of Tobacco and Firearms at (404)221-6526 for technical assistance. The local police department may also aid in disposal of these chemicals.

   Unknowns:

   Also in this category are bottles of totally unknown solutions or unknown solids. Since the danger from these materials is unknown they must be treated as potentially very dangerous. They will usually not be accepted at any hazardous waste disposal site.

5. A polychlorinated biphenyl (PCB) liquid may have to be handled separately. It is regulated under the Federal Toxic Substances Control Act (TSCA). PCB oil with concentration less than 50 ppm is not regulated under RCRA if it was manufactured before October 1, 1984, or manufactured more recently by special EPA permit. Under TSCA rules, PCB oils with greater than 2 ppm must be incinerated in a qualified incinerator [Part 761.20(e)]. A qualified incinerator can be an industrial furnace or boiler, but the waste must be added only at incinerator operating temperature. By operation of the RCRA Land Disposal Restrictions rules, PCB oil with greater than 50 ppm PCB must be incinerated in a TSCA approved incinerator. The reader may wish to consult Part 268 of the RCRA rules and Part 761.3 and 761.70 of the TSCA rules to see where his waste fits. In general, a waste with less than 50 ppm PCB may safely be included in a Lab Pack destined for a permitted hazardous waste disposal site. A list is provided under EPA Approved Disposal Sites, page 49.

SUGGESTED HANDLING PROCEDURES

Volume reduction by every means possible will reduce the total cost and is environmentally desirable.

1. Not all chemicals are hazardous under landfill conditions. Such materials as calcium chloride, aluminum sulfate, sodium phosphate, etc. should be separated out, packaged to prevent breaking during disposal and taken to the municipal landfill for supervised safe burial. Lists of regulated substances published under Chapter 391-3-11-.07, Part 261 are provided, pages 28-42. If in doubt about a particular chemical contact Georgia EPD at (404)656-7802.

2. Treat in the laboratory all chemicals which can be detoxified. Some common procedures for detoxification are provided, beginning on page 12. Treatment is required under the law. (See page 5)

3. Make every effort to identify unknown chemicals. They will not be accepted at an approved disposal facility. They may be very dangerous to handle and would have to be treated as explosives.

4. Separate the waste chemicals as you generate and store them by separate categories: Ignitables, reactives, strong oxidizers, extremely toxic (1 kg limit), and others which may be shipped together safely. Keep the Incompatible Checklist nearby (page 21).

5. Keep a running record of what is stored and its estimated weight. If this is done as an ongoing procedure, the lab packing process will be greatly facilitated.

TRANSPORTATION REQUIREMENTS

The U.S. Department of Transportation (DOT) has special rules for the movement of hazardous materials through the states. The regulations are found in 49 CFR Parts 171-177.

Training

DOT requires that those who prepare hazardous materials for shipment be trained so that they are knowledgeable about packing. DOT's Research and Special Programs Administration (RSPA) offers training to the public. Please call (617)494-2545. Training modules may be available from Hazardous Materials Information Exchange at 1-800-PLANFOR. Courses and advice are also available from the Georgia Freight Bureau at (404)524-7777. Additionally, industrial organizations such as the Chemical Manufacturers Association may offer training. The packer should acquire a certification from an acceptable source, and should make certain that the transporter is also certified.

Labeling

The State Hazardous Waste Rules for Safety are similar to those of DOT. However, for drum labeling, the USDOT recognizes two classes of ignitables which must be labeled accordingly (49 CFR 173.115):

DOT "Flammable": a material with a flash point under 100°F.
DOT "Combustible": a material with a flash point 100°F to 199°F.
RCRA "Ignitable": a material with a flash point under 140°F.

DOT has two classes of poisons which must be labeled accordingly: (49 CFR 173.326 and 40 CFR 173.343):

Poison A (cannot be shipped by rail express)

Bromoacetone	Diphosgene (phosgene)
Cyanogen	Hydrocyanic acid
Cyanogen chloride	Nitrogen peroxide or tetroxide
Ethyl or Methyl dichloroarsine	Nitric oxide-tetroxide mixtures

Poison B - all other liquids or solids or irritating materials which may be hazardous to man during shipment. It possesses one of the following characteristics which have been used to determine "acutely hazardous" wastes under the hazardous waste rules, page 28.

(1) Has an oral LD_{50}, rat, 50 mg/kg or less
(2) Has an inhalation LD_{50}, rat, 2 mg/l (1 hour - death within 48 hours)
(3) Has a dermal LD_{50}, rabbit, 200 mg/l (24 hours - death within 48 hours)

After treatment and segregation by safe categories, the containers should be sealed and packed in the proper drum (see diagram, page 6).

If you have a question the following are sources of help:

1) U.S. Department of Transportation
Mr. Tom Dunaway
tel: (404)347-4049
2) Georgia Public Service Commission
tel: (404)761-2432
This agency controls hazardous waste shipment in Georgia.

Exception

Certain small quantities of very particular materials are not subject to the regulations. These exceptions are found in 49 CFR Part 173.4, which should be checked to see if your waste is covered. (See page 71)

LAND DISPOSAL RESTRICTIONS

Georgia has adopted a set of rules aimed at requiring maximum treatment of all hazardous wastes before allowing any land disposal. These rules are contained in Chapter 391-3-11-.10, Part 268. If the laboratory generates more than 100 kilograms of hazardous waste per month (or 1 kg. acutely hazardous), these treatment limits must be addressed before the lab pack will be accepted for disposal. If the generated quantities are less than this, they may be lab packed as described herein and must only conform to DOT shipping requirements.

1) The Part 268 treatments are divided into four categories:

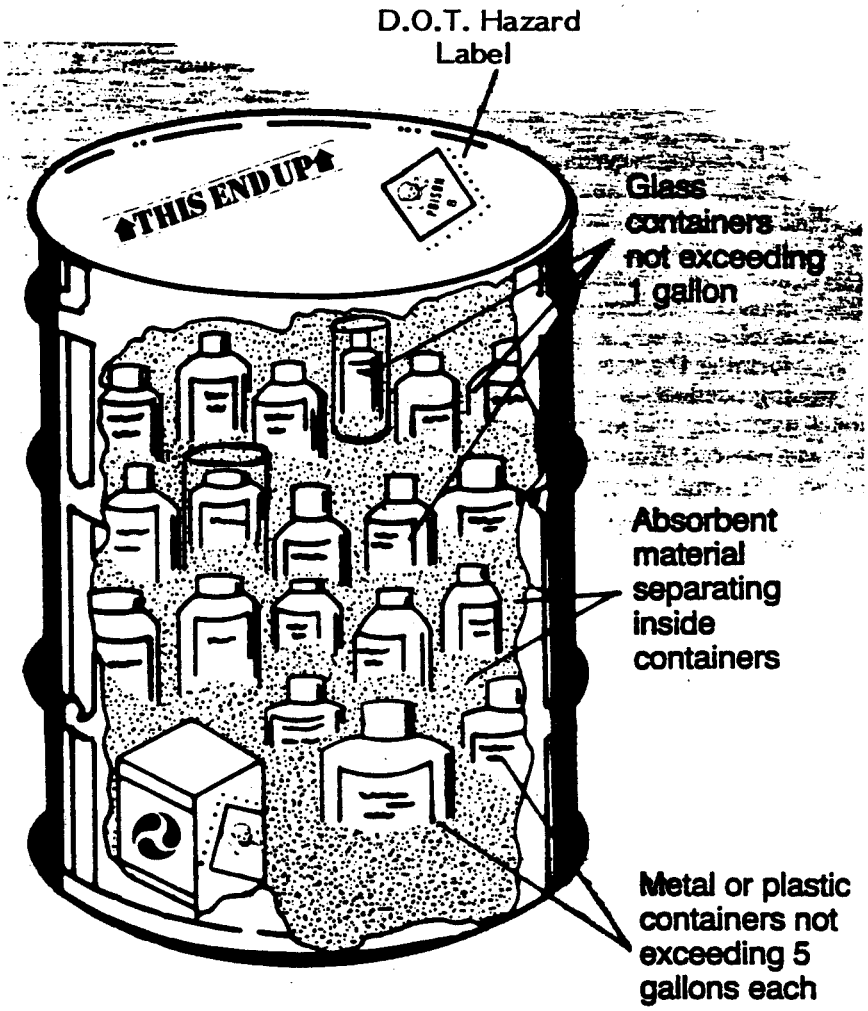
Part 268.41 - These are allowed concentrations in TCLP (leaching procedure) extracts (applied to listed wastes).

Part 268.42 - Certain wastes may be treated "as much as is possible" and a certification must be supplied.

Part 268.43 - These are allowed concentrations in the wastes themselves.

Part 268.44 - Certain wastes may not be land disposed at all.

If your waste is not listed here but is ignitable, corrosive, reactive, or leaches chemicals in the TCLP procedure, it must be deactivated, i.e.: treated by any means so that it does not exhibit these characteristics. For example, corrosive wastes may be neutralized, TCLP wastes may be precipitated and solidified, or put through a carbon column, etc.



LAB PACK DIAGRAM

The disposal method will determine the type of outer drum and packing materials. (See 49CFR 173.12)

2) You may elect to handle your wastes by incineration in a hazardous waste incinerator as follows:

a) Organometallics

Compatible wastes listed in Part 268 Appendix IV (p.68) may be packed in one container and incinerated. The residue from the incineration is subject to the TCLP leaching procedure. A certification must be supplied to the receiving facility verifying that no other wastes are present.

b) Organics

Compatible wastes listed in Part 268 Appendix V (p.68) may be packed in one container and incinerated.

Unlisted wastes may be mingled with listed wastes, if all are compatible, without altering these rules.

3) If PCB liquids containing 50 ppm PCB or more are to be disposed, they must be incinerated in a special incinerator that complies with the rules of 49 CFR Part 761.70.

4) If dioxins are to be included, the incinerator must conform to the requirements of Part 264, Subpart D. These are permitted hazardous waste incinerators.

5) All hazardous wastes with 1000 ppm or more of a list of halogenated chemicals are prohibited until treated to specified levels. (See page 64)

6) All liquid wastes with a pH of 2 or less are prohibited until treated.

7) Free cyanide in liquids, or the liquid of a sludge, must be treated to a level of 590 ppm total cyanide and 30 ppm, amenable cyanide. If it is a wastewater (less than 1% solids and less than 1% total organic carbon) it must be treated to 0.86 ppm amenable cyanide.

8) Liquids and sludge liquids containing toxic metals above the listed levels (see p.65) are prohibited until treated.

THE MANIFEST

Although the Lab. Pack wastes are treated they remain hazardous, and must be manifested for shipment. Page 9 contains an example manifest, and the following instructions are provided to assist the generator:

APPENDIX TO PART 262—UNIFORM HAZARDOUS WASTE MANIFEST AND INSTRUCTIONS (EPA FORMS 8700-22 AND 8700-22A AND THEIR INSTRUCTIONS)

U.S. EPA Form 8700-22

Read all instructions before completing this form.

This form has been designed for use on a 12-pitch (elite) typerwriter; a firm point pen may also be used—press down hard.

Federal regulations require generators and transporters of hazardous waste and owners or operators of hazardous waste treatment, storage, and disposal facilities to use this form (8700-22) and, if necessary, the continuation sheet (Form 8700-22A) for both inter and intrastate transportation.

Federal regulations also require generators and transporters of hazardous waste and owners or operators of hazardous waste treatment, storage and disposal facilities to complete the following information:

GENERATORS

Item 1. Generator's U.S. EPA ID Number—Manifest Document Number

Enter the generator's U.S. EPA twelve digit identification number and the unique five digit number assigned to this Manifest (e.g., 00001) by the generator.

Item 2. Page 1 of ——

Enter the total number of pages used to complete this Manifest, i.e., the first page (EPA Form 8700-22) plus the number of Continuation Sheets (EPA Form 8700-22A), if any.

Item 3. Generator's Name and Mailing Address

Enter the name and mailing address of the generator. The address should be the location that will manage the returned Manifest forms.

Item 4. Generator's Phone Number

Enter a telephone number where an authorized agent of the generator may be reached in the event of an emergency.

Item 5. Transporter 1 Company Name

Enter the company name of the first transporter who will transport the waste.

Item 6. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identification number of the first transporter identified in item 5.

Item 7. Transporter 2 Company Name

If applicable, enter the company name of the second transporter who will transport the waste. If more than two transporters are used to transport the waste, use a Continuation Sheet(s) (EPA Form 8700-22A) and list the transporters in the order they will be transporting the waste.

Item 8. U.S. EPA ID Number

If applicable, enter the U.S. EPA twelve digit identification number of the second transporter identified in item 7.

NOTE: If more than two transporters are used, enter each additional transporter's company name and U.S. EPA twelve digit identification number in items 24-27 on the Continuation Sheet (EPA Form 8700-22A). Each Continuation Sheet has space to record two additional transporters. Every transporter used between the generator and the designated facility must be listed.

Item 9. Designated Facility Name and Site Address

Enter the company name and site address of the facility designated to receive the waste listed on this Manifest. The address must be the site address, which may differ from the company mailing address.

Item 10. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identification number of the designated facility identified in item 9.

Item 11. U.S. DOT Description [Including Proper Shipping Name, Hazard Class, and ID Number (UN/NA)]

Enter the U.S. DOT Proper Shipping Name, Hazard Class, and ID Number (UN/NA) for each waste as identified in 49 CFR 171 through 177.

NOTE: If additional space is needed for waste descriptions, enter these additional descriptions in item 28 on the Continuation Sheet (EPA Form 8700-22A).

Item 12. Containers (No. and Type)

Enter the number of containers for each waste and the appropriate abbreviation from Table I (below) for the type of container.

Table I—Types of Containers

DM=Metal drums, barrels, kegs
DW=Wooden drums, barrels, kegs
DF=Fiberboard or plastic drums, barrels, kegs
TP=Tanks portable
TT=Cargo tanks (tank trucks)
TC=Tank cars
DT=Dump truck
CY=Cylinders
CM=Metal boxes, cartons, cases (including roll-offs)
CW=Wooden boxes, cartons, cases
CF=Fiber or plastic boxes, cartons, cases

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form... proved. OMB No. 2050-0039. Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. | Manifest Document No. | 2. Page 1 of | Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address

4. Generator's Phone ( )

5. Transporter 1 Company Name | 6. US EPA ID Number

7. Transporter 2 Company Name | 8. US EPA ID Number

9. Designated Facility Name and Site Address | 10. US EPA ID Number

A. State Manifest Document Number
B. State Generator's ID
C. State Transporter's ID
D. Transporter's Phone
E. State Transporter's ID
F. Transporter's Phone
G. State Facility's ID
H. Facility's Phone

GENERATOR

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a.					
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above | K. Handling Codes for Wastes Listed Above

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name | Signature | Month Day Year

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name | Signature | Month Day Year

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.

Printed/Typed Name | Signature | Month Day Year

EPA Form 8700-22 (Rev. 9-88) Previous editions are obsolete.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039 Expires 9-30-91

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator's US EPA ID No. | Manifest Document No | 22. Page | Information in the shaded areas is not required by Federal law

GENERATOR

23. Generator's Name

L. State Manifest Document Number
M. State Generator's ID

24. Transporter ___ Company Name | 25. US EPA ID Number

N. State Transporter's ID
O. Transporter's Phone

26. Transporter ___ Company Name | 27. US EPA ID Number

P. State Transporter's ID
Q. Transporter's Phone

28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	29. Containers No.	Type	30. Total Quantity	31. Unit Wt/Vol	R. Waste No.
a.					
b.					
c.					
d.					
e.					
f.					
g.					
h.					
i.					

S. Additional Descriptions for Materials Listed Above | T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter ___ Acknowledgement of Receipt of Materials | Date

Printed/Typed Name | Signature | Month Day Year

34. Transporter ___ Acknowledgement of Receipt of Materials | Date

Printed/Typed Name | Signature | Month Day Year

FACILITY

35. Discrepancy Indication Space

EPA Form 8700-22A (Rev. 9-88) Previous edition is obsolete.

EXAMPLE OF HAZARDOUS WASTE MANIFEST

BA=Burlap, cloth, paper or plastic bags

Item 13. Total Quantity

Enter the total quantity of waste described on each line.

Item 14. Unit (Wt./Vol.)

Enter the appropriate abbreviation from Table II (below) for the unit of measure.

Table II—Units of Measure

G=Gallons (liquids only)
P=Pounds
T=Tons (2000 lbs)
Y=Cubic yards
L=Liters (liquids only)
K=Kilograms
M=Metric tons (1000 kg)
N=Cubic meters

Item 15. Special Handling Instructions and Additional Information

Generators may use this space to indicate special transportation, treatment, storage, or disposal information or Bill of Lading information. States may not require additional, new, or different information in this space. For international shipments, generators must enter in this space the point of departure (City and State) for those shipments destined for treatment, storage, or disposal outside the jurisdiction of the United States.

Item 16. Generator's Certification

The generator must read, sign (by hand), and date the certification statement. If a mode *other than* highway is used, the word "highway" should be lined out and the appropriate mode (rail, water, or air) inserted in the space below. If another mode *in addition to* the highway mode is used, enter the appropriate additional mode (e.g., *and rail*) in the space below.

Primary exporters shipping hazardous wastes to a facility located outside of the United States must add to the end of the first sentence of the certification the following words "and conforms to the terms of the EPA Acknowledgment of Consent to the shipment."

In signing the waste minimization certification statement, those generators who have not been exempted by statute or regulation from the duty to make a waste minimization certification under section 3002(b) of RCRA are also certifying that they have complied with the waste minimization requirements.

Generators may preprint the words, "On behalf of" in the signature block or may hand write this statement in the signature block prior to signing the generator certifications.

NOTE: All of the above information *except* the handwritten signature required in item 16 may be preprinted.

* * * * *

TRANSPORTERS

Item 17. Transporter 1 Acknowledgement of Receipt of Materials

Enter the name of the person accepting the waste on behalf of the first transporter. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

Item 18. Transporter 2 Acknowledgement of Receipt of Materials

Enter, if applicable, the name of the person accepting the waste on behalf of the second transporter. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

NOTE: International Shipments—Transporter Responsibilities.

Exports—Transporters must sign and enter the date the waste left the United States in item 15 of Form 8700-22.

Imports—Shipments of hazardous waste regulated by RCRA and transported into the United States from another country must upon entry be accompanied by the U.S. EPA Uniform Hazardous Waste Manifest. Transporters who transport hazardous waste into the United States from another country are responsible for completing the Manifest (40 CFR 263.10(c)(1)).

Owners and Operators of Treatment, Storage, or Disposal Facilities

Item 19. Discrepancy Indication Space

The authorized representative of the designated (or alternate) facility's owner or operator must note in this space any significant discrepancy between the waste described on the Manifest and the waste actually received at the facility.

Item 20. Facility Owner or Operator: Certification of Receipt of Hazardous Materials Covered by This Manifest Except as Noted in Item 19

Print or type the name of the person accepting the waste on behalf of the owner or operator of the facility. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

Items A-K are not required by Federal regulations for intra- or interstate transportation. However, States may require generators and owners or operators of treatment, storage, or disposal facilities to complete some or all of items A-K as part of State manifest reporting requirements. Generators and owners and operators of treatment, storage, or disposal facilities are advised to contact State officials for guidance on completing the shaded areas of the Manifest.

GENERATORS

Item 21. Generator's U.S. EPA ID Number—Manifest Document Number

Enter the generator's U.S. EPA twelve digit identification number and the unique five digit number assigned to this Manifest (e.g., 00001) as it appears in item 1 on the first page of the Manifest.

Item 22. Page ——

Enter the page number of this Continuation Sheet.

Item 23. Generator's Name

Enter the generator's name as it appears in item 3 on the first page of the Manifest.

Item 24. Transporter —— Company Name

If additional transporters are used to transport the waste described on this Manifest, enter the company name of each additional transporter in the order in which they will transport the waste. Enter after the word "Transporter" the order of the transporter. For example, Transporter 3 Company Name. Each Continuation Sheet will record the names of two additional transporters.

Item 25. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identification number of the transporter described in item 24.

Item 26. Transporter —— Company Name

If additional transporters are used to transport the waste described on this Manifest, enter the company name of each additional transporter in the order in which they will transport the waste. Enter after the word "Transporter" the order of the transporter. For example, Transporter 4 Company Name. Each Continuation Sheet will record the names of two additional transporters.

Item 27. U.S. EPA ID Number

Enter the U.S. EPA twelve digit identification number of the transporter described in item 26.

Item 28. U.S. DOT Description Including Proper Shipping Name, Hazardous Class, and ID Number (UN/NA)

Refer to item 11.

Item 29. Containers (No. and Type)

Refer to item 12.

Item 30. Total Quantity

Refer to item 13.

Item 31. Unit (Wt./Vol.)

Refer to item 14.

Item 32. Special Handling Instructions

Generators may use this space to indicate special transportation, treatment, storage, or disposal information or Bill of Lading information. States are *not* authorized to require additional, new, or different information in this space.

• • • • •

TRANSPORTERS

Item 33. Transporter —— Acknowledgement of Receipt of Materials

Enter the same number of the Transporter as identified in item 24. Enter also the name of the person accepting the waste on behalf of the Transporter (Company Name) identified in item 24. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

Item 34. Transporter —— Acknowledgement of Receipt of Materials

Enter the same number as identified in item 26. Enter also the name of the person accepting the waste on behalf of the Transporter (Company Name) identified in item 26. That person must acknowledge acceptance of the waste described on the Manifest by signing and entering the date of receipt.

OWNERS AND OPERATORS OF TREATMENT, STORAGE, OR DISPOSAL FACILITIES

Item 35. Discrepancy Indication Space

Refer to item 19.

Items L–R are not required by Federal regulations for intra- or interstate transportation. However, States may require generators and owners or operators of treatment, storage, or disposal facilities to complete some or all of items L–R as part of State manifest reporting requirements. Generators and owners and operators of treatment, storage, or disposal facilities are advised to contact State officials for guidance on completing the shaded areas of the manifest.

COMMON DETOXIFICATION PROCEDURES

I. Acids and Caustics

Since it is a chemist or chemistry teacher who generates laboratory waste, this person can be responsible for diluting and neutralizing all inorganic acids and bases:

1. They should be slowly added to water. This generates some heat.

2. When cooled, acids should be brought to pH 7 with sodium carbonate or hydrated lime. Caustics can be treated with sulfuric or hydrochloric acid. Use litmus paper indicator. This also generates some heat.

3. At neutral pH they can be flushed to the sewer with a great excess of water.

II. Mercury and Mercury Salts

Mercury should be precipitated out of its solution using the procedure provided. The listed companies will provide a steel flask at no charge for saving and shipping mercury for recycling.

III. Sodium metal may be destroyed in a hood by dropping it, bit by bit, into excess alcohol surrounded by dry ice. A great deal of heat is generated and it must be watched. The solution should then be greatly diluted with water, and neutralized with hydrochloric acid as needed.

IV. Chromium in a hexavalent state is highly toxic to humans and should be reduced to trivalent chromium where possible.

V. Cyanides

These compounds can be destroyed by the procedure provided. While it is possible to ship unregulated quantities in a lab pack, it is environmentally sound practice to render all toxic materials non-hazardous where possible.

DISPOSAL OF IONIC MERCURY IN SOLUTION

Bring the pH of the solution to neutral or basic by adding sodium carbonate. Sodium hydroxide may have to be added if it cannot be achieved with sodium carbonate.

Add granular zinc or magnesium as follows: For every 100 grams of either mercurous or mercuric chloride present in the solution, add 110 grams zinc or 40 grams magnesium. This achieves a 4x molar excess.

Stir the solution for 24 hours in a hood. CAUTION: Hydrogen gas will be released during this process.

After 24 hours the solid material (mercury amalgam) will have separated. Decant and discard the supernatant liquid to the sewer.

Quantitatively transfer the solid material to a convenient container and allow to dry.

Companies recycling mercury:

These companies will supply a steel flask to hold 76 pounds of mercury for storage and shipment of contaminated metal.

1. Bethlehem Apparatus Company, Inc.
   Front and Depot Sts.
   Hellertown, Pennsylvania 18055
   Telephone: (215)838-7034

2. Goldsmith Division, National Lead Company
   111 North Wabash
   Chicago, Illinois 60602
   Telephone: (312)726-0232

3. Wood Ridge Chemical Corporation
   Park Place East
   Wood Ridge, New Jersey 07075
   Telephone: (201)939-4600

4. Quicksilver Products, Inc.
   305 Brannon Street
   San Francisco, California 94107
   Telephone: (415)781-1988

5. Mercury Refining Company, Inc.
   26 Railroad Avenue
   Albany, New York 12205
   Telephone: (518)785-1703

MERCURY SPILLS

1. Droplets of pure mercury:

   Use a suction pump and aspirator bottle (with a long capillary tube).

   Cover fine droplets in non-accessible cracks with calcium polysulfide and sulfur powder.

2. If a mercury compound is water soluble dissolve it in water.

3. If a mercury compound is insoluble convert it to the soluble nitrate.
   Dissolve in excess nitric acid solution (1M).

4. You now have an ionic mercury solution which can be precipitated as mercury amalgam (attached method) or precipitated as mercuric sulfide:

   Make the solution neutral with sodium hydroxide. Add an excess of 1M solution of sodium sulfide. Keep solution neutral with 1M sulfuric acid as needed.

   (Keep sodium sulfide crystals tightly closed and cool while storing.)

   Destroy excess sulfide solution by dropping into hypochlorite solution in a hood.

5. Wash all precipitates thoroughly. Discard water and store in a tightly covered container for return to supplier **or recycler.**

REDUCTION OF CHROMIUM +6

Examples: dichromate, chromate

If you do not know the concentration perform a titration as follows:

1. Take 100 ml sample and add 1 teaspoon potassium iodide crystal and 20 ml of 50% sulfuric acid. Mix and wait 5 minutes (cap the flask).

2. Add 1 ml of starch indicator solution and titrate with 0.1 M sodium thiosulfate to light blue.

3. The number of mls x 0.066 = grams Cr+6/gallon

4. $\frac{\text{(grams Cr+6/gallon) (total \# gallons)}}{454}$ = total pounds chromium present

Now treat the chromium solution as follows:

5. Acidify to pH 2.8 - 3.0

6. Add sodium metabisulfate: Determine the pounds required by multiplying the pounds of chromium present (Step 4) by 3.

7. Dissolve this weight in water, add to the chromium solution, mix, and let stand at least 2 hours.

8. Add caustic until the pH is 7 to 8. mix and allow to stand 4 hours. If the solution is not clear liquid and dark color remains, it is not complete and the procedure must be repeated.

9. The precipitate containing the chromium falls to the bottom and the supernatant can be drained to the sewer.

Chromium +3 is considered non-toxic to man, and less toxic to fish, and in this state may be disposed of in a landfill provided it is water insoluble.

DESTRUCTION OF SODIUM METAL

This procedure also applies to lithium and potassium metals. Under no circumstances handle ungreased metal strips. The dry metal can form unstable peroxides in air.

There must be no contact with water in the following operation:

1. Take a large beaker or container and surround it with dry ice (CO_2) in a larger container.

2. Place an excess of butyl alcohol in the beaker: at least 15 ml/gram sodium or 30 ml/gram lithium. For potassium use tert-butyl alcohol at 25 ml/gram potassium.

3. Cut the greased sodium or lithium in small strips and add them one at a time to the alcohol. Watch for excess heat generation and possible splattering. When reaction has abated add another piece. Yellow oxide coated potassium should not be cut even if greased. Add it whole.

4. These metals require different lengths of time to dissolve. If the reaction is going too slowly (as for whole potassium sticks) one or two ml methanol/gram metal may be dropped in slowly.

5. When the solution has cooled, neutralize the hydroxide which has formed by adding hydrochloric or sulfuric acid to pH 7.

6. The solution may then be flushed to the sewer with a great excess of water.

Treatment of Tin and Titanium Tetrachlorides

Certain metal halides are water reactive and must be treated by slowly adding to stirred water in a flask surrounded by dry ice to dissipate heat.

THE DISPOSAL OF CYANIDE

The occasional user of small quantities of cyanides is sometimes faced with the problem of disposing of wastes contaminated with cyanide. In view of the toxic properties of cyanides certain precautions must be taken to assure that the disposal of the waste does not create a health problem in the area. For the user of large quantities of cyanides special systems can be incorporated into the waste treatment process. However, the occasional user is not equipped to handle these wastes routinely, and the following procedure is offered as a guide to safe disposal.

Precautions

Certain precautions relating to the handling of cyanides should be established to assure the safety of all concerned. Under no circumstances should any of the metallic cyanide salts (NaCN, KCN, $Ca(CN)_2$, etc.) come in contact with acids or acidic solutions. Whenever acids contact cyanide salts, dangerous quantities of hydrogen cyanide gas may be released. This may also occur on contact with water that is below neutral pH. Adding the salt to an alkaline solution will prevent this release. Ideally, the treatment should be performed in a hood, but may be carried out in open air if performed carefully.

Chlorine Treatment

Chlorine is an excellent oxidant and when it is used in an alkaline medium, it will destroy the toxic cyanide ion by oxidizing it to the less toxic cyanate compound. The oxidation with chlorine can also be carried beyond this point to form carbon dioxide and water. The second stage requires a change in the pH of the system after completion of the first stage of the oxidation.

Availability of Chlorine

Chlorine suitable for use in this procedure is locally available in a number of different forms. The most convenient method of obtaining chlorine may be found by using sodium hypochlorite or calcium hypochlorite. Sodium hypochlorite is commercially available as a 15% available chlorine solution. It is also available in a more dilute solution as household laundry bleach. Clorox, Purex, etc., are typical examples of the dilute hypochlorite solution.

Chlorinated lime, many times referred to as chloride of lime [$CaCl(ClO).4H_2O$], is another convenient way of obtaining chlorite for use in destroying cyanides. Chlorinated lime contains about 30% available chlorine.

Perhaps the most chlorine per pound of solid material is to be found in high test hypochlorite. This is available in many swimming pool supply centers as HTH-70. It is a calcium hypochlorite that contains 70% available chlorine.

Note: HTH-70 is a powerful oxidizing agent. It should not come into contact with flammable solvents or organic chemicals.

Table I is given to illustrate the relationship between the amount of chlorinating agent to be used for each of the three types of cyanide described. It will be noted from this table that two different amounts of chlorinating agent are shown for use with calcium cyanide.

The larger amount is for use with a pure calcium cyanide. The crude form of calcium cyanide is more frequently encountered in commerce. It contains only 45% calcium cyanide. Consequently, a smaller amount of chlorinating agent would be required.

In developing the recommended quantities of chlorinating agent to be used in this procedure a generous allowance has been made for impurities that may be contained in the waste product. Sometimes these other contaminants may also react with chlorine and prevent the complete destruction of cyanide. It is considered that the safety factor provided (25% over theoretical requirements) is sufficient to assure the conversion of all cyanide to cyanate.

TABLE I

CHLORINATING AGENT REQUIRED TO CONVERT CYANIDES TO CYANATES

Type of Cyanide Waste	**Type of Chlorinating Agent**		
	Household Bleach 5% Available Chlorine	Chlorinated Lime 30% Available Chlorine	High Test Hypochlorite HTH 70% Available Chlorine
ONE POUND			
Sodium Cyanide (NaCN)	16 1/2 quarts	6 lbs.	2 1/2 lbs.
Potassium Cyanide (KCN)	14 quarts	4 3/4 lbs.	2 lbs.
Calcium Cyanide $Ca(CN)_2$ - 100% $Ca(CN)_2$ - 45%	 15 1/2 quarts 9 quarts	 4 1/2 lbs. 2 1/2 lbs.	 1 3/4 lbs. 1 lb.

NOTE: If nickel or copper cyanide salts are known to be in the wastes the amount of the chlorinating agent used should be increased by approximately 40%. These metals are known to slow down the reaction between chlorine and cyanide.

Detoxification Procedure

1. Determine the weight of the cyanide compound to be destroyed.

2. Dissolve or slurry the cyanide waste in alkaline water using 1 1/2 gallons per pound of cyanide. Household lye may be used to make an alkaline water solution. It should be pH 10. Use test paper and leave it in the solution.

3. From Table I determine the amount of chlorinating agent to be used for each pound of cyanide.

4. Dissolve or slurry solid chlorinating agent in water in a ratio of about one pound per gallon. If household laundry bleach solution is employed it may be used without dilution.

5. Slowly add the cyanide solution to the chlorinating solution.

   NOTE: a. A temperature rise may occur and mixing should be done slowly to prevent an excessive heat release.
   b. Assure that the mixed solutions remain alkaline. A pH of 10, or more, is required. Add more sodium hydroxide or lye if needed. Test with pH paper and leave in the solution.

6. Frequently agitate the cyanide-chlorine solution during the first 30 minutes after the cyanide waste addition has been completed. Later the frequency of stirring may be reduced.

7. After one hour test the mixture for the presence of free chlorine.

   NOTE: a. Starch iodide test papers available at local laboratory supply centers may be used. Wet the test paper with the mixture. If the paper turns blue, chlorine is present. If it does not, more chlorinating agent should be added to the mixture.

   b. The Chlorine Test Kits used for home swimming pool maintenance may be employed to test for free chlorine. These should be used in accordance with the manufacturer's instructions.

8. Now decrease the pH to 8.5 by addition of hydrochloric acid.

9. Add an <u>excess</u> of chlorinating agent. Wait one hour.

Dilute the entire solution with a great excess of water and discharge into sewer system.

<u>Reactions</u>

1) $CN^- + H^+ + OC1$ ----------> $CNC1 + OH^-$ (fast)

2) $CNC1 + 2OH^-$ ----------> $CNO^- + C1 + H_2O$ (slow below pH 9)

3) $2\ CHO^- + 3\ OC1^- + H_2O$ ---------> $2\ CO_2 + N_2 + 3\ C1^- + 2OH^-$ (slow)

2) Is slow below pH 9 unless excess $OC1^-$ present.
> pH 10 goes to cyanate in 5 minutes unless Ni present.
If Ni present takes > 30 minutes + excess $OC1^-$.

3) Is slow unless decrease pH to 8.5 + 10% excess $OC1^-$ then (3) takes 1 hour.

METAL PRECIPITATING AGENTS

Most toxic metals may be precipitated out of solution by raising the pH to about 9 with hydrated lime. A polymer is then sometimes added to aid flocculation and the material is filtered. If complexing agents are present this procedure may not work well. Sodium sulfide will precipitate these metals but has an odor, and is also toxic in itself. However, there are mixtures on the market such as TMT 15 (Degussa Corp)* which are non-toxic and are reported to function well. The resulting solids must pass the TCLP leach test and may be cured in cement if necessary.

* This does not constitute an endorsement. EPD does not test commercial materials.

INCOMPATIBLE CHEMICALS GUIDELINES

These lists are not to be construed as complete.

Guidelines for the Handling and Disposal of Incompatible Wastes

1. Incompatible wastes should not be mixed in the same transportation or storage container.

2. A waste should not be added to an unwashed transportation or storage container that previously contained an incompatible waste.

3. Incompatible wastes should not be combined in the same pond, landfill, soil-mixing area, well, or burial container. An exception is the controlled neutralization of acids and alkalies in disposal areas. Containers which hold incompatible wastes should be well separated by soil or refuse when they are buried. Ideally, separate disposal areas should be maintained for non-compatible wastes.

4. Incompatible wastes should not be incinerated together. An exception is the controlled incineration of pesticides and other toxic substances with flammable solvents.

These guidelines do not apply to any hazardous waste generator, transporter, or disposer or to any person involved in hazardous waste management who combines hazardous wastes for neutralization, detoxification or experimental purposes providing that the lives and health of personnel involved and of the public are protected by controlling volumes, flow rates, constraints, vessel configurations, temperatures, and vents during the process or experiment so that uncontrollable reaction, fire, explosion, heat generation, or release of toxic materials does not occur.

PARTIAL LIST OF INCOMPATIBLE CHEMICALS

The following list of chemicals in the left-hand column should be transported, stored, used, and disposed of in such a manner that they do not accidentally come in contact with the corresponding chemicals in the right-hand column. These chemicals could react violently if allowed to come in accidental contact with each other, resulting in an explosion, or may produce highly toxic and/or flammable gases or vapors. However, it should be remembered that this list is not in any way complete, but is to serve only as a guide for the more commonly used chemicals.

Acetic acid	Chromic acid, ethylene glycol, hydroxyl-containing compounds, nitric acid, perchloric acid, permanganates, and peroxides.
Acetone	Bromine, chlorine, nitric acid and sulfuric acid.
Acetylene	Bromine, chlorine, copper, mercury, and silver.
Alkaline and alkaline earth metals such as calcium, cesium, lithium, magnesium, potassium and sodium	Carbon dioxide, chlorinated hydrocarbons, and water.
Aluminum and its alloys (particularly powders)	Acid or alkaline solutions, ammonium persulphate and water, chlorates, chlorinated compounds, nitrates, and organic compounds, nitrates, and organic compounds in nitrate/nitrite salt baths.
Ammonia (anhydrous)	Bromine, calcium hypochlorite, chlorine, hydrofluoric acid, iodine, mercury, and silver.
Ammonium perchlorate permanganate or persulfate	Combustible materials; oxidizing materials such as acids, chlorates, and nitrates.
Ammonium nitrate	Acids, chlorates, chlorides, lead, metallic nitrates, metal powders, finely divided organics or combustibles, sulfur, and zinc.
Aniline	Hydrogen peroxide or nitric acid.
Barium peroxide	Combustible organics, oxidizable materials, and water.
Barium rhodanide	Sodium nitrate.
Bismuth and its alloys	Perchloric acid.
Bromine	Acetone, acetylene, ammonia, benzene, butadiene, butane, and other petroleum gases, hydrogen, finely divided metals, sodium carbide, and turpentine.

Calcium or sodium carbide	Moisture (in air) or water.
Calcium hypochlorite	(Activated) ammonia or carbon.
Chlorates or perchlorates	Acids, aluminum, ammonium salts, cyanides, phosphorous, metal powders, oxidizable organics or other combustibles, sugar, sulfides, and sulfur.
Chlorine	Acetone, acetylene, ammonia, benzene, butadiene, butane and other petroleum gases, hydrogen, metal powders, sodium carbide, and turpentine.
Chlorine dioxide	Ammonia, hydrogen sulfide, methane, and phosphine.
Chromic acid	Acetic acid (glacial), acetic anhydride, alcohols, combustible materials, flammable liquids, glycerine, naphthalene, nitric acid, sulfur, and turpentine.
Cumene hydro-peroxide	Acids (mineral or organic).
Cyanides conc. cyanides	Acids Alkalies (polymerization).
Fluorine	Most materials.
Hydrocarbons such as benzene, butane, gasoline, propane, turpentine, etc.	Bromine, chlorine, chromic acid, fluorine, hydrogen peroxide, and sodium peroxide.
Hydrofluoric acid or anhydrous hydrogen fluoride	Ammonia (anhydrous or aqueous).
Hydrocyanic acid or hydrogen cyanide	Alkalies and nitric acid (polymerization).
Hydrogen peroxide 3%	Chromium, copper, iron, most metals or their salts.
Hydrogen peroxide 30% or 90%	Same as 3% hydrogen peroxide plus aniline, any flammable liquids, combustible materials, nitro-methane, and all other organic matter.
Hydrogen sulfide	Fuming nitric acid or oxidizing gases.
Iodine	Acetylene, ammonia (anhydrous or aqueous), and hydrogen.
Lithium	Acids, moisture in air, and water.
Lithium aluminum hydride	Air, chlorinate hydrocarbons, carbon dioxide, ethyl acetate, and water.

Magnesium (particularly powder)	Carbonates, chlorates, heavy metal oxalates or oxides, nitrates, perchlorates, peroxides, phosphates, and sulfates.
Mercuric oxide	Sulfur
Mercury	Acetylene, alkali metals, ammonia, nitric acid with ethanol, and oxalic acid.
Nitrates	Combustible materials, esters, phosphorous, sodium acetate, stannous chloride, water, and zinc powder.
Nitric acid (conc.)	Acetic acid, aniline, chromic acid, flammable gases and liquids, hydrocyanic acid, hydrogen sulfide, and nitratable substances.
Nitric acid	Alcohols and other oxidizable organic material, hydriodic acid (hydrogen iodide), magnesium or other metals, phosphorous, and thiopene.
Nitrites	Potassium or sodium cyanide.
Nitro parafins	Inorganic alkalies.
Oxalic acid	Mercury or silver.
Oxygen (liquid or enriched air)	Flammable gases, liquids, or solids such as acetone, acetylene, grease, hydrogen, oils, and phosphorous.
Perchloric acid	Acetic anhydride, alcohols, bismuth and its alloys, grease, oils or any organic material, and reducing agents.
Peroxides (organic)	Acids (mineral or organic).
Phosphorous	Chlorates and perchlorates, nitrates and nitric acid.
Phosphorous pentoxide	Organic compounds or water.
Phosphorous (Red)	Oxidizing materials.
Phosphorous (White)	Air (oxygen) or other oxidizing materials.
Pioric acid	Ammonia heated with oxides or salts of heavy metals and friction with oxidizing agents.
Potassium	Air (moisture and/or oxygen) or water.
Potassium chlorate or perchlorate	Acids or their vapors, combustible materials, especially organic solvents, phosphorous, and sulfur.
Potassium permanganate	Benzaldehyde, ethylene glycol, glycerin, and sulfuric acid.

Silver	Acetylene, ammonium compounds, nitric acid with ethanol, oxalic acid, and tartaric acid.
Sodium amide	Air (moisture and oxygen) or water.
Sodium chlorate	Acids, ammonium salts, oxidizable materials and sulfur.
Sodium hydrosulfite	Air (moisture) or combustible materials.
Sodium nitrite	Ammonia compounds, ammonium nitrate, or other ammonium salts.
Sodium peroxide	Acetic acid (glacial), acetic anhydride, alcohols, benzaldehyde, carbon disulfide, ethyl acetate, ethylene glycol, furfural, glycerine, methyl acetate, and other oxidizable substances.
Sulfur	Any oxidizing materials.
Sulfuric acid	Chlorates, perchlorates, and permanganates.
Water	Acetyl chloride, alkaline and alkaline earth metals, their hydrides and oxides, barium peroxide, carbides, chromic acid, phosphorous oxychloride, phosphorous pentachloride, phosphorous pentoxide, sulfuric acid, and sulfur trioxide, etc.
Zinc chlorate	Acids or organic materials.
Zinc (particularly powder)	Carbon tetrachloride and other halogenated hydrocarbons, peroxides, sodium bicarbonate, and water.

LIST OF POTENTIALLY INCOMPATIBLE WASTES
391-3-11-.10, part 265, Appendix V

The mixing of a Group A waste with a Group B waste may have the potential consequence as noted.

Group 1-A	Group 1-B
Acetylene sludge	Acid sludge
Alkaline caustic liquids	Acid and water
Alkaline cleaner	Battery acid
Alkaline corrosive liquids	Chemical cleaners
Alkaline corrosive battery fluid	Electrolyte, acid
Caustic wastewater	Etching acid liquid or solvent
Lime sludge and other corrosive alkalies	Liquid cleaning compounds
Lime wastewater	Pickling liquor and other corrosive acids
Lime and water	Sludge acid
Spent caustic	Spent acid
	Spent mixed acid
	Spent sulfuric acid

Potential consequences: Heat generation, violent reaction

Group 2-A	Group 2-B
Asbestos waste and other toxic wastes	Cleaning solvents
Beryllium wastes	Date processing liquid
Unrinsed pesticide containers	Obsolete explosives
Waste pesticides	Petroleum waste
	Refinery waste
	Retrograde explosives
	Solvents
	Waste oil and other flammable and explosive wastes

Potential consequences: Release of toxic substances in case of fire or explosion

Group 3-A	Group 3-B
Aluminum	Any waste in Group 1-A or 1-B
Beryllium	
Calcium	
Lithium	
Magnesium	
Potassium	
Sodium	
Zinc powder and other reactive metals and metal hydrides	

Potential consequences: Fire or explosion; generation of flammable hydrogen gas

Group 4-A	Group 4-B
Alcohols Water	Any concentrated waste in Groups 1-A or 1-B Calcium Lithium Metal hydrides Potassium Sodium SO_2Cl_2, $SOCl_2$, PCl_3, CH_3SiCl_3, and other water-reactive wastes

Potential consequences: Fire, explosion, or heat generation; generation of flammable or toxic gases

Group 5-A	Group 5-B
Alcohols Aldehydes Halogenated hydrocarbons Nitrated hydrocarbons and other reactive organic compounds and solvents Unsaturated hydrocarbons	Concentrated Group 1-A or 1-B wastes Group 3-A wastes

Potential consequences: Fire, explosion or violent reaction

Group 6-A	Group 6-B
Spent cyanide and sulfide solutions	Group 1-B wastes

Potential consequences: Generation of toxic hydrogen cyanide or hydrogen sulfide gas

Group 7-A	Group 7-B
Chlorates and other strong oxidizers Chlorine Chlorites Chromic acid Hypochlorites Nitrates Nitric acid, fuming Perchlorates Permanganates Peroxides	Acetic acid and other organic acids Concentrated mineral acids Group 2-B wastes Group 3-A wastes Group 5-A wastes and other flammable and combustible wastes

Potential consequences: Fire, explosion, or violent reaction

ACUTELY HAZARDOUS SUBSTANCES
391-3-11.07, Part 261.33(e)

If your chemical is listed it is considered highly toxic. If it is followed by the letter R it is hazardous because of extreme reactivity.

The reader should be aware that some chemicals which are known by the generator to be acutely hazardous may not be on this list. If any chemical has an oral rat lethal dose (LD_{50}) of 50 milligrams per kilogram body weight, or less, it is acutely toxic. If it has a rat lethal inhalation concentration (LC_{50}) of 2 milligrams per kilogram body weight it is also acutely toxic. These chemicals cannot be sent to the local landfill and would be regulated under the Georgia Solid Waste Act as needed.

These wastes and their corresponding EPA Hazardous Waste Numbers are:

Hazardous waste No.	Substance
P023	Acetaldehyde, chloro-
P002	Acetamide, N-(aminothioxomethyl)-
P057	Acetamide, 2-fluoro-
P058	Acetic acid, fluoro-, sodium salt
P066	Acetimidic acid, N-[(methylcarbamoyl)oxy]thio-, methyl ester
P001	3-(alpha-Acetonylbenzyl)-4-hydroxycoumarin and salts, when present at concentrations greater than 0.3%
P002	1-Acetyl-2-thiourea
P003	Acrolein
P070	Aldicarb
P004	Aldrin
P005	Allyl alcohol
P006	Aluminum phosphide
P007	5-(Aminomethyl)-3-isoxazolol
P008	4-sAminopyridine
P009	Ammonium picrate (R)
P119	Ammonium vanadate
P010	Arsenic acid
P012	Arsenic (III) oxide
P011	Arsenic (V) oxide
P011	Arsenic pentoxide
P012	Arsenic trioxide
P038	Arsine, diethyl-
P054	Aziridine
P013	Barium cyanide
P024	Benzenamine, 4-chloro-
P077	Benzenamine, 4-nitro-
P028	Benzene, (chloromethyl)-
P042	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-
P014	Benzenethiol
P028	Benzyl chloride
P015	Beryllium dust
P016	Bis(chloromethyl) ether
P017	Bromoacetone
P018	Brucine
P021	Calcium cyanide
P123	Camphene, octachloro-
P103	Carbamimidoselenoic acid
P022	Carbon bisulfide
P022	Carbon disulfide
P095	Carbonyl chloride
P033	Chlorine cyanide
P023	Chloroacetaldehyde
P024	p-Chloroaniline
P026	1-(o-Chlorophenyl)thiourea
P027	3-Chloropropionitrile
P029	Copper cyanides

Hazardous waste No.	Substance
P030	Cyanides (soluble cyanide salts), not elsewhere specified
P031	Cyanogen
P033	Cyanogen chloride
P036	Dichlorophenylarsine
P037	Dieldrin
P038	Diethylarsine
P039	O,O-Diethyl S-[2-(ethylthio)ethyl] phosphorodithioate
P041	Diethyl-p-nitrophenyl phosphate
P040	O,O-Diethyl O-pyrazinyl phosphorothioate
P043	Diisopropyl fluorophosphate
P044	Dimethoate
P045	3,3-Dimethyl-1-(methylthio)-2-butanone, O-[(methylamino)carbonyl] oxime
P071	O,O-Dimethyl O-p-nitrophenyl phosphorothioate
P082	Dimethylnitrosamine
P046	alpha, alpha-Dimethylphenethylamine
P047	4,6-Dinitro-o-cresol and salts
P034	4,6-Dinitro-o-cyclohexylphenol
P048	2,4-Dinitrophenol
P020	Dinoseb
P085	Diphosphoramide, octamethyl-
P039	Disulfoton
P049	2,4-Dithiobiuret
P109	Dithiopyrophosphoric acid, tetraethyl ester
P050	Endosulfan
P088	Endothall
P051	Endrin
P042	Epinephrine
P046	Ethanamine, 1,1-dimethyl-2-phenyl-
P084	Ethenamine, N-methyl-N-nitroso-
P101	Ethyl cyanide
P054	Ethylenimine
P097	Famphur
P056	Fluorine
P057	Fluoroacetamide
P058	Fluoroacetic acid, sodium salt
P065	Fulminic acid, mercury(II) salt (R,T)
P059	Heptachlor
P051	1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,endo-1,4:5,8-dimethanonaphthalene
P037	1,2,3,4,10,10-Hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,exo-1,4:5,8-demethanonaphthalene
P060	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo, endo-dimeth- anonaphthalene
P004	1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,exo-dimethanonaphthalene
P060	Hexachlorohexahydro-exo,exo-dimethanonaphthalene
P062	Hexaethyl tetraphosphate
P116	Hydrazinecarbothioamide
P068	Hydrazine, methyl-
P063	Hydrocyanic acid
P063	Hydrogen cyanide
P096	Hydrogen phosphide
P064	Isocyanic acid, methyl ester
P007	3(2H)-Isoxazolone, 5-(aminomethyl)-
P092	Mercury, (acetato-O)phenyl-
P065	Mercury fulminate (R,T)
P016	Methane, oxybis(chloro-
P112	Methane, tetranitro- (R)
P118	Methanethiol, trichloro-
P059	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-
P066	Methomyl
P067	2-Methylaziridine
P068	Methyl hydrazine
P064	Methyl isocyanate
P069	2-Methyllactonitrile
P071	Methyl parathion
P072	alpha-Naphthylthiourea
P073	Nickel carbonyl
P074	Nickel cyanide
P074	Nickel(II) cyanide
P073	Nickel tetracarbonyl
P075	Nicotine and salts
P076	Nitric oxide
P077	p-Nitroaniline
P078	Nitrogen dioxide
P076	Nitrogen(II) oxide
P078	Nitrogen(IV) oxide
P081	Nitroglycerine (R)
P082	N-Nitrosodimethylamine
P084	N-Nitrosomethylvinylamine
P050	5-Norbornene-2,3-dimethanol, 1,4,5,6,7,7-hexachloro, cyclic sulfite
P085	Octamethylpyrophosphoramide
P087	Osmium oxide
P087	Osmium tetroxide
P088	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid
P089	Parathion
P034	Phenol, 2-cyclohexyl-4,6-dinitro-
P048	Phenol, 2,4-dinitro-
P047	Phenol, 2,4-dinitro-6-methyl-
P020	Phenol, 2,4-dinitro-6-(1-methylpropyl)-
P009	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P036	Phenyl dichloroarsine
P092	Phenylmercuric acetate
P093	N-Phenylthiourea
P094	Phorate
P095	Phosgene
P096	Phosphine
P041	Phosphoric acid, diethyl p-nitrophenyl ester
P044	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl]ester
P043	Phosphorofluoric acid, bis(1-methylethyl)-ester
P094	Phosphorothioic acid, O,O-diethyl S-(ethylthio)methyl ester
P089	Phosphorothioic acid, O,O-diethyl O-(p-nitrophenyl) ester
P040	Phosphorothioic acid, O,O-diethyl O- pyrazinyl ester
P097	Phosphorothioic acid, O,O-dimethyl O-[p-((dimethylamino)-sulfonyl)phenyl]ester
P110	Plumbane, tetraethyl-
P098	Potassium cyanide
P099	Potassium silver cyanide
P070	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime
P101	Propanenitrile
P027	Propanenitrile, 3-chloro-
P069	Propanenitrile, 2-hydroxy-2-methyl-
P081	1,2,3-Propanetriol, trinitrate- (R)
P017	2-Propanone, 1-bromo-
P102	Propargyl alcohol
P003	2-Propenal
P005	2-Propen-1-ol
P067	1,2-Propylenimine
P102	2-Propyn-1-ol
P008	4-Pyridinamine
P075	Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl)-, and salts
P111	Pyrophosphoric acid, tetraethyl ester
P103	Selenourea
P104	Silver cyanide
P105	Sodium azide

P106	Sodium cyanide
P107	Strontium sulfide
P108	Strychnidin-10-one, and salts
P018	Strychnidin-10-one, 2,3-dimethoxy-
P108	Strychnine and salts
P115	Sulfuric acid, thallium(I) salt
P109	Tetraethyldithiopyrophosphate
P110	Tetraethyl lead
P111	Tetraethylpyrophosphate
P112	Tetranitromethane (R)
P062	Tetraphosphoric acid, hexaethyl ester
P113	Thallic oxide
P113	Thallium(III) oxide
P114	Thallium(I) selenite
P115	Thallium(I) sulfate
P045	Thiofanox
P049	Thioimidodicarbonic diamide
P014	Thiophenol
P116	Thiosemicarbazide
P026	Thiourea, (2-chlorophenyl)-
P072	Thiourea, 1-naphthalenyl-
P093	Thiourea, phenyl-
P123	Toxaphene
P118	Trichloromethanethiol
P119	Vanadic acid, ammonium salt
P120	Vanadium pentoxide
P120	Vanadium(V) oxide
P001	Warfarin, when present at concentrations greater than 0.3%
P121	Zinc cyanide
P122	Zinc phosphide (R,T)
P122	Zinc phosphide, when present at concentrations greater than 10%

HAZARDOUS SUBSTANCES
391-3-11-.07, Part 261.33(f)

If your chemical is listed on any of the following lists it is considered toxic (T) unless it is followed by "I" for ignitable, "R" for reactive, or "C" for corrosive. Some chemicals are hazardous for all four reasons.

The reader should be aware that some chemicals which are known by the generator to be toxic may not be on these lists. Certain pesticides and pharmaceutical chemicals are included in this category. These materials cannot be sent to the local landfill and would be regulated under the Georgia Solid Waste Act.

These wastes and their corresponding EPA Hazardous Waste Numbers are:

Hazardous Waste No.	Substance
U001	Acetaldehyde (I)
U034	Acetaldehyde, trichloro-
U187	Acetamide, N-(4-ethoxyphenyl)-
U005	Acetamide, N-9H-fluoren-2-yl-
U112	Acetic acid, ethyl ester (I)
U144	Acetic acid, lead salt
U214	Acetic acid, thallium(I) salt
U002	Acetone (I)
U003	Acetonitrile (I,T)
U248	3-(alpha-Acetonylbenzyl)-4-hydroxycoumarin and salts, when present at concentrations of 0.3% or less
U004	Acetophenone
U005	2-Acetylaminofluorene
U006	Acetyl chloride (C,R,T)
U007	Acrylamide
U008	Acrylic acid (I)
U009	Acrylonitrile
U150	Alanine, 3-[p-bis(2-chloroethyl)amino] phenyl-, L-
U011	Amitrole
U012	Aniline (I,T)
U014	Auramine
U015	Azaserine
U010	Azirino(2',3':3,4)pyrrolo(1,2-a)indole-4,7-dione, 6-amino-8-[((aminocarbonyl) oxy)methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-,
U157	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-
U016	Benz[c]acridine
U016	3,4-Benzacridine
U017	Benzal chloride
U018	Benz[a]anthracene
U018	1,2-Benzanthracene
U094	1,2-Benzanthracene, 7,12-dimethyl-
U012	Benzenamine (I,T)
U014	Benzenamine, 4,4'-carbonimidoylbis(N,N-dimethyl-
U049	Benzenamine, 4-chloro-2-methyl-
U093	Benzenamine, N,N'-dimethyl-4-phenylazo-
U158	Benzenamine, 4,4'-methylenebis(2-chloro-
U222	Benzenamine, 2-methyl-, hydrochloride
U181	Benzenamine, 2-methyl-5-nitro
U019	Benzene (I,T)
U038	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy, ethyl ester
U030	Benzene, 1-bromo-4-phenoxy-
U037	Benzene, chloro-
U190	1,2-Benzenedicarboxylic acid anhydride
U028	1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)] ester
U069	1 2-Benzenedicarboxylic acid, dibutyl ester
U088	1,2-Benzenedicarboxylic acid, diethyl ester
U102	1,2-Benzenedicarboxylic acid, dimethyl ester
U107	1,2-Benzenedicarboxylic acid, di-n-octyl ester
U070	Benzene, 1,2-dichloro-
U071	Benzene, 1,3-dichloro-
U072	Benzene, 1,4-dichloro-
U017	Benzene, (dichloromethyl)-
U223	Benzene, 1,3-diisocyanatomethyl- (R,T)
U239	Benzene, dimethyl-(I,T)
U201	1,3-Benzenediol
U127	Benzene, hexachloro-
U056	Benzene, hexahydro- (I)
U188	Benzene, hydroxy-
U220	Benzene, methyl-
U105	Benzene, 1-methyl-1-2,4-dinitro-
U106	Benzene, 1-methyl-2,6-dinitro-
U203	Benzene, 1,2-methylenedioxy-4-allyl-
U141	Benzene, 1,2-methylenedioxy-4-propenyl-
U090	Benzene, 1,2-methylenedioxy-4-propyl-
U055	Benzene, (1-methylethyl)- (I)
U169	Benzene, nitro- (I,T)
U183	Benzene, pentachloro-
U185	Benzene, pentachloro-nitro-
U020	Benzenesulfonic acid chloride (C,R)
U020	Benzenesulfonyl chloride (C,R)
U207	Benzene, 1,2,4,5-tetrachloro-
U023	Benzene, (trichloromethyl)-(C,R,T)

Hazardous Waste No.	Substance
0234	Benzene, 1,3,5-trinitro- (R,T)
U021	Benzidine
U202	1,2-Benzisothiazolin-3-one, 1,1-dioxide
U120	Benzo[j,k]fluorene
U022	Benzo[a]pyrene
U022	3,4-Benzopyrene
U197	p-Benzoquinone
U023	Benzotrichloride (C,R,T)
U050	1,2-Benzphenanthrene
U085	2,2'-Bioxirane (I,T)
U021	(1,1'-Biphenyl)-4,4'-diamine
U073	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dichloro-
U091	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethoxy-
U095	(1,1'-Biphenyl)-4,4'-diamine, 3,3'-dimethyl-
U024	Bis(2-chloroethoxy) methane
U027	Bis(2-chloroisopropyl) ether
U244	Bis(dimethylthiocarbamoyl) disulfide
U028	Bis(2-ethylhexyl) phthalate
U246	Bromine cyanide
U225	Bromoform
U030	4-Bromophenyl phenyl ether
U128	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U172	1-Butanamine, N-butyl-N-nitroso-
U035	Butanoic acid, 4-[Bis(2-chloroethyl)amino] benzene-
U031	1-Butanol (I)
U159	2-Butanone (I,T)
U160	2-Butanone peroxide (R,T)
U053	2-Butenal
U074	2-Butene, 1,4-dichloro- (I,T)
U031	n-Butyl alchohol (I)
U136	Cacodylic acid
U032	Calcium chromate
U238	Carbamic acid, ethyl ester
U178	Carbamic acid, methylnitroso-, ethyl ester
U176	Carbamide, N-ethyl-N-nitroso-
U177	Carbamide, N-methyl-N-nitroso-
U219	Carbamide, thio-
U097	Carbamoyl chloride, dimethyl-
U215	Carbonic acid, dithallium(I) salt
U156	Carbonochloridic acid, methyl ester (I,T)
U033	Carbon oxyfluoride (R,T)
U211	Carbon tetrachloride
U033	Carbonyl fluoride (R,T)
U034	Chloral
U035	Chlorambucil
U036	Chlordane, technical
U026	Chlornaphazine
U037	Chlorobenzene
U039	4-Chloro-m-cresol
U041	1-Chloro-2,3-epoxypropane
U042	2-Chloroethyl vinyl ether
U044	Chloroform
U046	Chloromethyl methyl ether
U047	beta-Chloronaphthalene
U048	o-Chlorophenol
U049	4-Chloro-o-toluidine, hydrochloride
U032	Chromic acid, calcium salt
U050	Chrysene
U051	Creosote
U052	Cresols
U052	Cresylic acid
U053	Crotonaldehyde
U055	Cumene (I)
U246	Cyanogen bromide
U197	1,4-Cyclohexadienedione
U056	Cyclohexane (I)
U057	Cyclohexanone (I)
U130	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexa- chloro-
U058	Cyclophosphamide
U240	2,44-D, salts and esters
U059	Daunomycin

Hazardous Waste No.	Substance
U060	DDD
U061	DDT
U142	Decachlorooctahydro-1,3,4-metheno-2H-cyclobuta[c,d]-pentalen-2-one
U062	Diallate
U133	Diamine (R,T)
U221	Diaminotoluene
U063	Dibenz[a,h]anthracene
U063	1,2:5,6-Dibenzanthracene
U064	1,2:7,8-Dibenzopyrene
U064	Dibenz[a,i]pyrene
U066	1,2-Dibromo-3-chloropropane
U069	Dibutyl phthalate
U062	S-(2,3-Dichloroallyl) diisopropylthiocarbamate
U070	o-Dichloroben ene
U071	m-Dichlorobenzene
U072	p-Dichlorobenzene
U073	3,3'-Dichlorobenzidine
U074	1,4-Dichloro-2-butene (I,T)
U075	Dichlorodifluoromethane
U192	3,5-Dichloro-N-(1,1-dimethyl-2-propynyl) benzamide
U060	Dichloro diphenyl dichloroethane
U061	Dichloro diphenyl trichloroethane
U078	1,1-Dichloroethylene
U079	1,2-Dichloroethylene
U025	Dichloroethyl ether
U081	2,4-Dichlorophenol
U082	2,6-Dichlorophenol
U240	2,4-Dichlorophenoxyacetic acid, salts and esters
U083	1,2-Dichloropropane
U084	1,3-Dichloropropene
U085	1,2:3,4-Diepoxybutane (I,T)
U108	1,4-Diethylene dioxide
U086	N,N-Diethylhydrazine
U087	O,O-Diethyl-S-methyl-dithiophosphate
U088	Diethyl phthalate
U089	Diethylstilbestrol
U148	1,2-Dihydro-3,6-pyradizinedione
U090	Dihydrosafrole
U091	3,3'-Dimethoxybenzidine
U092	Dimethylamine (I)
U093	Dimethylaminoazobenzene
U094	7,12-Dimethylbenz[a]anthracene
U095	3,3'-Dimethylbenzidine
U096	alpha,alpha-Dimethylbenzylhydroperoxide (R)
U097	Dimethylcarbamoyl chloride
U098	1,1-Dimethylhydrazine
U099	1,2-Dimethylhydrazine
U101	2,4-Dimethylphenol
U102	Dimethyl phthalate
U103	Dimethyl sulfate
U105	2,4-Dinitrotoluene
U106	2,6-Dinitrotoluene
U107	Di-n-octyl phthalate
U108	1,4-Dioxane
U109	1,2- Diphenylhydrazine
U110	Dipropylamine (I)
U111	Di-N-propylnitrosamine
U001	Ethanal (I)
U174	Ethanamine, N-ethyl-N-nitroso-
U067	Ethane, 1,2-dibromo-
U076	Ethane, 1,1-dichloro-
U077	Ethane, 1,2-dichloro-
U114	1,2-Ethanediylbiscarbamodithioic acid
U131	Ethane, 1,1,1,2,2,2-hexachloro-
U024	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-
U003	Ethanenitrile (I, T)
U117	Ethane,1,1'-oxybis- (I)
U025	Ethane, 1,1'-oxybis[2-chloro-
U184	Ethane, pentachloro-

Hazardous Waste No.	Substance
U208	Ethane, 1,1,1,2-tetrachloro-
U209	Ethane, 1,1,2,2-tetrachloro-
U218	Ethanethioamide
U247	Ethane, 1,1,1,-trichloro-2,2-bis(p-methoxyphenyl).
U227	Ethane, 1,1,2-trichloro-
U043	Ethene, chloro-
U042	Ethene, 2-chloroethoxy-
U078	Ethene, 1,1-dichloro-
U079	Ethene, trans-1,2-dichloro-
U210	Ethene, 1,1,2,2-tetrachloro-
U173	Ethanol, 2,2'-(nitrosoimino)bis-
U004	Ethanone, 1-phenyl-
U006	Ethanoyl chloride (C,R,T)
U112	Ethyl acetate (I)
U113	Ethyl acrylate (I)
U238	Ethyl carbamate (urethan)
U038	Ethyl 4,4'-dichlorobenzilate
U114	Ethylenebis(dithiocarbamic acid)
U067	Etylene dibromide
U077	Ethylene dichloride
U115	Ethlene oxide (I,T)
U116	Ethylene thiourea
U117	Ethyl ether (I)
U076	Ethylidene dichloride
U118	Ethylmethacrylate
U119	Ethyl methanesulfonate
U139	Ferric dextran
U120	Fluoranthene
U122	Formaldehyde
U123	Formic acid (C,T)
U124	Furan (I)
U125	2-Furancarboxaldehyde (I)
U147	2,5-Furandione
U213	Furan, tetrahydro- (I)
U125	Furfural (I)
U124	Furfuran (I)
U206	D-Glucopyranose, 2-deoxy-2(3-methyl-3-nitrosoureido)-
U126	Glycidylaldehyde
U163	Guanidine, N-nitroso-N-methyl-N'nitro-
U127	Hexachlorobenzene
U128	Hexachlorobutadiene
U129	Hexachlorocyclohexane (gamma isomer)
U130	Hexachlorocyclopentadiene
U131	Hexachloroethane
U132	Hexachlorophene
U243	Hexachloropropene
U133	Hydrazine (R,T)
U086	Hydrazine, 1,2-diethyl-
U098	Hydrazine, 1,1-dimethyl-
U099	Hydrazine, 1,2-dimethyl-
U109	Hydrazine, 1,2-diphenyl-
U134	Hydrofluoric acid (C,T)
U134	Hydrogen fluoride (C,T)
U135	Hydrogen sulfide
U096	Hydroperoxide, 1-methyl-1-phenylethyl- (R)
U136	Hydroxydimethylarsine oxide
U116	2-Imidazolidinethione
U137	Indeno[1,2,3-cd]pyrene
U139	Iron dextran
U140	Isobutyl alcohol (I,T)
U141	Isosafrole
U142	Kepone
U143	Lasiocarpine
U144	Lead acetate
U145	Lead phosphate
U146	Lead subacetate
U129	Lindane
U147	Maleic anhydride
U148	Maleic hydrazide
U149	Malononitrile
U150	Melphalan
U151	Mercury
U152	Methacrylonitrile (I,T)
U092	Methanamine, N-methyl- (I)
U029	Methane, bromo-
U045	Methane, chloro- (I,T)
U046	Methane, chloromethoxy-
U068	Methane, dibromo-
U080	Methane, dichloro-
U075	Methane, dichlorodifluoro-
U138	Methane, iodo-
U119	Methanesulfonic acid, ethyl ester
U211	Methane, tetrachloro-
U121	Methane, trichlorofluoro-
U153	Methanethiol (I,T)
U225	Methane, tribromo-
U044	Methane, trichloro-
U121	Methane, trichlorofluoro-
U123	Methanoic acid (C,T)
U036	4,7-Methanoindan, 1,2,4,5,6,7,8,8-octachloro-3a,4,7,7a-tetrahydro-
U154	Methanol (I)
U155	Methapyrilene
U247	Methoxychlor.
U154	Methyl alcohol (I)
U029	Methyl bromide
U186	1-Methylbutadiene (I)
U045	Methyl chloride (I,T)
U156	Methyl chlorocarbonate (I,T)
U226	Methylchloroform
U157	3-Methylcholanthrene
U158	4,4'-Methylenebis(2-chloroaniline)
U132	2,2'-Methylenebis(3,4,6-trichlorophenol)
U068	Methylene bromide
U080	Methylene chloride
U122	Methylene oxide
U159	Methyl ethyl ketone (I,T)
U160	Methyl ethyl ketone peroxide (R,T)
U138	Methyl iodide
U161	Methyl isobutyl ketone (I)
U162	Methyl methacrylate (I,T)
U163	N-Methyl-N'-nitro-N-nitrosoguanidine
U161	4-Methyl-2-pentanone (I)
U164	Methylthiouracil
U010	Mitomycin C
U059	5,12-Naphthacenedione, (8S-cis)-8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl)oxyl]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-
U165	Naphthalene
U047	Naphthalene, 2-chloro-
U166	1,4-Naphthalenedione
U236	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-(1,1'-biphenyl)-4,4'diyl)]-bis (azo)bis(5-amino-4-hydroxy)-,tetrasodium salt
U166	1,4,Naphthaquinone
U167	1-Naphthylamine
U168	2-Naphthylamine
U167	alpha-Naphthylamine
U168	beta-Naphthylamine
U026	2-Naphthylamine, N,N'-bis(2-chloromethyl)-
U169	Nitrobenzene (I,T)
U170	p-Nitrophenol
U171	2-Nitropropane (I)
U172	N-Nitrosodi-n-butylamine
U173	N-Nitrosodiethanolamine
U174	N-Nitrosodiethylamine
U111	N-Nitroso-N-propylamine
U176	N-Nitroso-N-ethylurea
U177	N-Nitroso-N-methylurea
U178	N-Nitroso-N-methylurethane

Hazardous Waste No.	Substance
U179	N-Nitrosopiperidine
U180	N-Nitrosopyrrolidine
U181	5-Nitro-o-toluidine
U193	1,2-Oxathiolane, 2,2-dioxide
U058	2H-1,3,2-Oxazaphosphorine, 2-[bis(2-chloroethyl)amino]tetrahydro-, oxide 2-
U115	Oxirane (I,T)
U041	Oxirane, 2-(chloromethyl)-
U182	Paraldehyde
U183	Pentachlorobenzene
U184	Pentachloroethane
U185	Pentachloronitrobenzene
See F027	Pentachlorophenol
U186	1,3-Pentadiene (I)
U187	Phenacetin
U188	Phenol
U048	Phenol, 2-chloro-
U039	Phenol, 4-chloro-3-methyl-
U081	Phenol, 2,4-dichloro-
U082	Phenol, 2,6-dichloro-
U101	Phenol, 2,4-dimethyl-
U170	Phenol, 4-nitro-
See F027	Phenol, pentachloro-
Do	Phenol, 2,3,4,6-tetrachloro-
Do	Phenol, 2,4,5-trichloro-
Do	Phenol, 2,4,6-trichloro-
U137	1,10-(1,2-phenylene)pyrene
U145	Phosphoric acid, Lead salt
U087	Phosphorodithioic acid, 0,0-diethyl-, S-methyl-ester
U189	Phosphorous sulfide (R)
U190	Phthalic anhydride
U191	2-Picoline
U192	Pronamide
U194	1-Propanamine (I,T)
U110	1-Propanamine, N-propyl- (I)
U066	Propane, 1,2-dibromo-3-chloro-
U149	Propanedinitrile
U171	Propane, 2-nitro- (I)
U027	Propane, 2,2'oxybis[2-chloro-
U193	1,3-Propane sultone
U235	1-Propanol, 2,3-dibromo-, phosphate (3:1)
U126	1-Propanol, 2,3-epoxy-
U140	1-Propanol, 2-methyl- (I,T)
U002	2-Propanone (I)
U007	2-Propenamide
U084	Propene, 1,3-dichloro-
U243	1-Propene, 1,1,2,3,3,3-hexachloro-
U009	2-Propenenitrile
U152	2-Propenenitrile, 2-methyl- (I,T)
U008	2-Propenoic acid (I)
U113	2-Propenoic acid, ethyl ester (I)
U118	2-Propenoic acid, 2-methyl-, ethyl ester
U162	2-Propenoic acid, 2-methyl-, methyl ester (I,T)
See F027	Propionic acid, 2-(2,4,5-trichlorophenoxy)-
U194	n-Propylamine (I,T)
U083	Propylene dichloride
U196	Pyridine
U155	Pyridine, 2-[(2-(dimethylamino)-2-thenylamino]-
U179	Pyridine, hexahydro-N-nitroso-
U191	Pyridine, 2-methyl-
U164	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-
U180	Pyrrole, tetrahydro-N-nitroso-
U200	Reserpine
U201	Resorcinol
U202	Saccharin and salts
U203	Safrole
U204	Selenious acid
U204	Selenium dioxide
U205	Selenium disulfide (R,T)

Hazardous Waste No.	Substance
U015	L-Serine, diazoacetate (ester)
See F027	Silvex
U089	4,4'-Stilbenediol, alpha,alpha'-diethyl-
U206	Streptozotocin
U135	Sulfur hydride
U103	Sulfuric acid, dimethyl ester
U189	Sulfur phosphide (R)
U205	Sulfur selenide (R,T)
See F027	2,4,5-T
U207	1,2,4,5-Tetrachlorobenzene
U208	1,1,1,2-Tetrachloroethane
U209	1,1,2,2-Tetrachloroethane
U210	Tetrachloroethylene
See F027	2,3,4,6-Tetrachlorophenol
U213	Tetrahydrofuran (I)
U214	Thallium(I) acetate
U215	Thallium(I) carbonate
U216	Thallium(I) chloride
U217	Thallium(I) nitrate
U218	Thioacetamide
U153	Thiomethanol (I,T)
U219	Thiourea
U244	Thiram
U220	Toluene
U221	Toluenediamine
U223	Toluene diisocyanate (R,T)
U222	O-Toluidine hydrochloride
U011	1H-1,2,4-Triazol-3-amine
U226	1,1,1-Trichloroethane
U227	1,1,2-Trichloroethane
U228	Trichloroethene
U228	Trichloroethylene
U121	Trichloromonofluoromethane
See F027	2,4,5-Trichlorophenol
Do	2,4,6-Trichlorophenol
Do	2,4,5-Trichlorophenoxyacetic acid
U234	sym-Trinitrobenzene (R,T)
U182	1,3,5-Trioxane, 2,4,5-trimethyl-
U235	Tris(2,3-dibromopropyl) phosphate
U236	Trypan blue
U237	Uracil, 5[bis(2-chloromethyl)amino]-
U237	Uracil mustard
U043	Vinyl chloride
U248	Warfarin, when present at concentrations of 0.3% or less
U239	Xylene (I)
U200	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxy-benzoyl)oxy]-, methyl ester
U249	Zinc phosphide, when present at concentrations of 10% or less.

The general list of RCRA regulated chemicals known as Part 261, Appendix VIII is included for reference.

Appendix VIII—Hazardous Constituents

Acetonitrile (Ethanenitrile)
Acetophenone (Ethanone, 1-phenyl)
3-(alpha-Acetonylbenzyl)-4-hydroxycoumarin and salts (Warfarin)
2-Acetylaminofluorene (Acetamide, N-(9H-fluoren-2-yl)-)
Acetyl chloride (Ethanoyl chloride)
1-Acetyl-2-thiourea (Acetamide, N-(aminothioxomethyl)-)
Acrolein (2-Propenal)
Acrylamide (2-Propenamide)
Acrylonitrile (2-Propenenitrile)
Aflatoxins
Aldrin (1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a,8b-hexahydro-endo,exo-1,4:5,8-Dimethanonaphthalene)
Allyl alcohol (2-Propen-1-ol)
Aluminum phosphide
4-Aminobiphenyl ([1,1'-Biphenyl]-4-amine)
6-Amino-1,1a,2,8,8a,8b-hexahydro-8-(hydroxymethyl)-8a-methoxy-5-methyl-carbamate azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, (ester) (Mitomycin C) (Azirino[2'3':3,4]pyrrolo(1,2-a)indole-4,7-dione, 6-amino-8-[((amino-carbonyl)oxy)methyl]-1,1a,2,8,8a,8b-hexahydro-8amethoxy-5-methy-)
5-(Aminomethyl)-3-isoxazolol (3(2H)-Isoxazolone, 5-(aminomethyl)-) 4-Aminopyridine (4-Pyridinamine)
Amitrole (1H-1,2,4-Triazol-3-amine)
Aniline (Benzenamine)
Antimony and compounds, N.O.S.*
Aramite (Sulfurous acid, 2-chloroethyl-, 2-[4-(1,1-dimethylethyl)phenoxy]-1-methylethyl ester)
Arsenic and compounds, N.O.S.*
Arsenic acid (Orthoarsenic acid)
Arsenic pentoxide (Arsenic (V) oxide)
Arsenic trioxide (Arsenic (III) oxide)
Auramine (Benzenamine, 4,4'-carbonimidoylbis[N,N-Dimethyl-, monohydrochloride)
Azaserine (L-Serine, diazoacetate (ester))
Barium and compounds, N.O.S.*
Barium cyanide
Benz[c]acridine (3,4-Benzacridine)
Benz[a]anthracene (1,2-Benzanthracene)
Benzene (Cyclohexatriene)
Benzenearsonic acid (Arsonic acid, phenyl-)
Benzene, dichloromethyl- (Benzal chloride)
Benzenethiol (Thiophenol)
Benzidine ([1,1'-Biphenyl]-4,4'diamine)
Benzo[b]fluoranthene (2,3-Benzofluoranthene)
Benzo[j]fluoranthene (7,8-Benzofluoranthene)
Benzo[a]pyrene (3,4-Benzopyrene)
p-Benzoquinone (1,4-Cyclohexadienedione)
Benzotrichloride (Benzene, trichloromethyl-)
Benzyl chloride (Benzene, (chloromethyl)-)
Beryllium and compounds, N.O.S.*
Bis(2-chloroethoxy)methane (Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-])
Bis(2-chloroethyl) ether (Ethane, 1,1'-oxybis[2-chloro-])
N,N-Bis(2-chloroethyl)-2-naphthylamine (Chlornaphazine)
Bis(2-chloroisopropyl) ether (Propane, 2,2'-oxybis[2-chloro-])
Bis(chloromethyl) ether (Methane, oxybis[chloro-])
Bis(2-ethylhexyl) phthalate (1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester)
Bromoacetone (2-Propanone, 1-bromo-)
Bromomethane (Methyl bromide)
4-Bromophenyl phenyl ether (Benzene, 1-bromo-4-phenoxy-)
Brucine (Strychnidin-10-one, 2,3-dimethoxy-)
2-Butanone peroxide (Methyl ethyl ketone, peroxide)
Butyl benzyl phthalate (1,2-Benzenedicarboxylic acid, butyl phenylmethyl ester)
2-sec-Butyl-4,6-dinitrophenol (DNBP) (Phenol, 2,4-dinitro-6-(1-methylpropyl)-)
Cadmium and compounds, N.O.S.*
Calcium chromate (Chromic acid, calcium salt)
Calcium cyanide

*The abbreviation N.O.S. (not otherwise specified) signifies those members of the general class not specifically listed by name in this appendix.

Carbon disulfide (Carbon bisulfide)
Carbon oxyfluoride (Carbonyl fluoride)
Chloral (Acetaldehyde, trichloro-)
Chlorambucil (Butanoic acid, 4-[bis(2-chloroethyl)amino]benzene-)
Chlordane (alpha and gamma isomers) (4,7-Methanoindan, 1,2,4,5,6,7,8,8-octachloro-3,4,7,7a-tetrahydro-) (alpha and gamma isomers)
Chlorinated benzenes, N.O.S.*
Chlorinated ethane, N.O.S.*
Chlorinated fluorocarbons, N.O.S.*
Chlorinated naphthalene, N.O.S.*
Chlorinated phenol, N.O.S.*
Chloroacetaldehyde (Acetaldehyde, chloro-)
Chloroalkyl ethers, N.O.S.*
p-Chloroaniline (Benzenamine, 4-chloro-)
Chlorobenzene (Benzene, chloro-)
Chlorobenzilate (Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester)
2-Chloro-1, 3-butadiene (chloroprene)
p-Chloro-m-cresol (Phenol, 4-chloro-3-methyl)
1-Chloro-2,3-epoxypropane (Oxirane, 2-(chloromethyl)-)
2-Chloroethyl vinyl ether (Ethene, (2-chloroethoxy)-)
Chloroform (Methane, trichloro-)
Chloromethane (Methyl chloride)
Chloromethyl. methyl ether (Methane, chloromethoxy-)
2-Chloronaphthalene (Naphthalene, beta-chloro-)
2-Chlorophenol (Phenol, o-chloro-)
1-(o-Chlorophenyl)thiourea (Thiourea, (2-chlorophenyl)-)
3-Chloropropene (allyl chloride)
3-Chloropropionitrile (Propanenitrile, 3-chloro-)
Chromium and compounds, N.O.S.*
Chrysene (1,2-Benzphenanthrene)
Citrus red No. 2 (2-Naphthol, 1-[(2,5-dimethoxyphenyl)azo]-)
Coal tars
Copper cyanide
Creosote (Creosote, wood)
Cresols (Cresylic acid) (Phenol, methyl-)
Crotonaldehyde (2-Butenal)
Cyanides (soluble salts and complexes), N.O.S.*
Cyanogen (Ethanedinitrile)
Cyanogen bromide (Bromine cyanide)
Cyanogen chloride (Chlorine cyanide)
Cycasin (beta-D-Glucopyranoside, (methyl-ONN-azoxy)methyl-)
2-Cyclohexyl-4,6-dinitrophenol (Phenol, 2-cyclohexyl-4,6-dinitro-)
Cyclophosphamide (2H-1,3,2,-Oxazaphosphorine, [bis(2-chloroethyl)amino]-tetrahydro-, 2-oxide)
Daunomycin (5,12-Naphthacenedione, (8S-cis)-8-acetyl-10-[(3-amino-2,3,6-trideoxy)-alpha-L-lyxo-hexopyranosyl)oxy]-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-)
DDD (Dichlorodiphenyldichloroethane) (Ethane, 1,1-dichloro-2,2-bis(p-chlorophenyl)-)
DDE (Ethylene, 1,1-dichloro-2,2-bis(4-chlorophenyl)-)
DDT (Dichlorodiphenyltrichloroethane) (Ethane, 1,1,1-trichloro-2,2-bis(p-chlorophenyl)-)
Diallate (S-(2,3-dichloroallyl) diisopropylthiocarbamate)
Dibenz[a,h]acridine (1,2,5,6-Dibenzacridine)
Dibenz[a,j]acridine (1,2,7,8-Dibenzacridine)
Dibenz[a,h]anthracene (1,2,5,6-Dibenzanthracene)
7H-Dibenzo[c,g]carbazole (3,4,5,6-Dibenzcarbazole)
Dibenzo[a,e]pyrene (1,2,4,5-Dibenzpyrene)
Dibenzo[a,h]pyrene (1,2,5,6-Dibenzpyrene)
Dibenzo[a,i]pyrene (1,2,7,8-Dibenzpyrene)
1,2-Dibromo-3-chloropropane (Propane, 1,2-dibromo-3-chloro-)
1,2-Dibromoethane (Ethylene dibromide)
Dibromomethane (Methylene bromide)
Di-n-butyl phthalate (1,2-Benzenedicarboxylic acid, dibutyl ester)
o-Dichlorobenzene (Benzene, 1,2-dichloro-)
m-Dichlorobenzene (Benzene, 1,3-dichloro-)
p-Dichlorobenzene (Benzene, 1,4-dichloro-)
Dichlorobenzene, N.O.S.* (Benzene, dichloro-, N.O.S.*)
3,3'-Dichlorobenzidine ([1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-)
1,4-Dichloro-2-butene (2-Butene, 1,4-dichloro-)
Dichlorodifluoromethane (Methane, dichlorodifluoro-)
1,1-Dichloroethane (Ethylidene dichloride)
1,2-Dichloroethane (Ethylene dichloride)
trans-1,2-Dichloroethene (1,2-Dichloroethylene)
Dichloroethylene, N.O.S.* (Ethene, dichloro-, N.O.S.*)
1,1-Dichloroethylene (Ethene, 1,1-dichloro-)
Dichloromethane (Methylene chloride)
2,4-Dichlorophenol (Phenol, 2,4-dichloro-)
2,6-Dichlorophenol (Phenol, 2,6-dichloro-)
2,4-Dichlorophenoxyacetic acid (2,4-D), salts and esters (Acetic acid, 2,4-dichlorophenoxy-, salts and esters)
Dichlorophenylarsine (Phenyl dichloroarsine)
Dichloropropane, N.O.S.* (Propane, dichloro-, N.O.S.*)
1,2-Dichloropropane (Propylene dichloride)
Dichloropropanol, N.O.S.* (Propanol, dichloro-, N.O.S.*)
Dichloropropene, N.O.S.* (Propene, dichloro-, N.O.S.*)
1,3-Dichloropropene (1-Propene, 1,3-dichloro-)
Dieldrin (1,2,3,4,10.10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octa-hydro-endo,exo-1,4:5,8-Dimethanonaphthalene)
1,2:3,4-Diepoxybutane (2,2'-Bioxirane)
Diethylarsine (Arsine, diethyl-)

N,N-Diethylhydrazine (Hydrazine, 1,2-diethyl)
O,O-Diethyl S-methyl ester of phosphorodithioic acid (Phosphorodithioic acid, O,O-diethyl S-methyl ester
O,O-Diethylphosphoric acid, O-p-nitrophenyl ester (Phosphoric acid, diethyl p-nitrophenyl ester)
Diethyl phthalate (1,2-Benzenedicarboxylic acid, diethyl ester)
O,O-Diethyl O-2-pyrazinyl phosphorothioate (Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
Diethylstilbesterol (4,4'-Stilbenediol, alpha,alpha-diethyl, bis(dihydrogen phosphate, (E)-)
Dihydrosafrole (Benzene, 1,2-methylenedioxy-4-propyl-)
3,4-Dihydroxy-alpha-(methylamino)methyl benzyl alcohol (1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-)
Diisopropylfluorophosphate (DFP) (Phosphorofluoridic acid, bis(1-methylethyl) ester)
Dimethoate (Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester
3,3'-Dimethoxybenzidine ([1,1'-Biphenyl]-4,4'diamine, 3-3'-dimethoxy-)
p-Dimethylaminoazobenzene (Benzenamine, N,N-dimethyl-4-(phenylazo)-)
7,12-Dimethylbenz[a]anthracene (1,2-Benzanthracene, 7,12-dimethyl-)
3,3'-Dimethylbenzidine ([1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-)
Dimethylcarbamoyl chloride (Carbamoyl chloride, dimethyl-)
1,1-Dimethylhydrazine (Hydrazine, 1,1-dimethyl-)
1,2-Dimethylhydrazine (Hydrazine, 1,2-dimethyl-)
3,3-Dimethyl-1-(methylthio)-2-butanone, O-[(methylamino) carbonyl]oxime (Thiofanox)
alpha,alpha-Dimethylphenethylamine (Ethanamine, 1,1-dimethyl-2-phenyl-)
2,4-Dimethylphenol (Phenol, 2,4-dimethyl-)
Dimethyl phthalate (1,2-Benzenedicarboxylic acid, dimethyl ester)
Dimethyl sulfate (Sulfuric acid, dimethyl ester)
Dinitrobenzene, N.O.S.* (Benzene, dinitro-, N.O.S.*)
4,6-Dinitro-o-cresol and salts (Phenol, 2,4-dinitro-6-methyl-, and salts)
2,4-Dinitrophenol (Phenol, 2,4-dinitro-)
2,4-Dinitrotoluene (Benzene, 1-methyl-2,4-dinitro-)
2,6-Dinitrotoluene (Benzene, 1-methyl-2,6-dinitro-)
Di-n-octyl phthalate (1,2-Benzenedicarboxylic acid, dioctyl ester)
1,4-Dioxane (1,4-Diethylene oxide)
Diphenylamine (Benzenamine, N-phenyl-)
1,2-Diphenylhydrazine (Hydrazine, 1,2-diphenyl-)
Di-n-propylnitrosamine (N-Nitroso-di-n-propylamine)
Disulfoton (O,O-diethyl S-[2-(ethylthio)ethyl] phosphorodithioate)
2,4-Dithiobiuret (Thioimidodicarbonic diamide)
Endosulfan (5-Norbornene, 2,3-dimethanol, 1,4,5,6,7,7-hexachloro-, cyclic sulfite)
Endrin and metabolites (1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octahydro-endo,endo-1,4:5,8-dimethanonaphthalene, and metabolites)
Ethyl carbamate (Urethan) (Carbamic acid, ethyl ester)
Ethyl cyanide (propanenitrile)
Ethylenebisdithiocarbamic acid, salts and esters (1,2-Ethanediylbiscarbamodithioic acid, salts and esters
Ethyleneimine (Aziridine)
Ethylene oxide (Oxirane)
Ethylenethiourea (2-Imidazolidinethione)
Ethyl methacrylate (2-Propenoic acid, 2-methyl-, ethyl ester)
Ethyl methanesulfonate (Methanesulfonic acid, ethyl ester)
Fluoranthene (Benzo[j,k]fluorene)
Fluorine
2-Fluoroacetamide (Acetamide, 2-fluoro-)
Fluoroacetic acid, sodium salt (Acetic acid, fluoro-, sodium salt)
Formaldehyde (Methylene oxide)
Formic acid (Methanoic acid)
Glycidylaldehyde (1-Propanol-2,3-epoxy)
Halomethane, N.O.S.*
Heptachlor (4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-)
Heptachlor epoxide (alpha, beta, and gamma isomers) (4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-2,3-epoxy-3a,4,7,7-tetrahydro-, alpha, beta, and gamma isomers)
Hexachlorobenzene (Benzene, hexachloro-)
Hexachlorobutadiene (1,3-Butadiene, 1,1,2,3,4,4-hexachloro-)
Hexachlorocyclohexane (all isomers) (Lindane and isomers)
Hexachlorocyclopentadiene (1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-)
Hexachlorodibenzo-*p*-dioxins
Hexachlorodibenzofurans
Hexachloroethane (Ethane, 1,1,1,2,2,2-hexachloro-)
1,2,3,4,10,10-Hexachloro-1,4,4a,5,8,8a-hexahydro-1,4:5,8-endo,endo-dimethanonaphthalene (Hexachlorohexahydro-endo,endo-dimethanonaphthalene)
Hexachlorophene (2,2'-Methylenebis(3,4,6-trichlorophenol))
Hexachloropropene (1-Propene, 1,1,2,3,3,3-hexachloro-)
Hexaethyl tetraphosphate (Tetraphosphoric acid, hexaethyl ester)
Hydrazine (Diamine)
Hydrocyanic acid (Hydrogen cyanide)
Hydrofluoric acid (Hydrogen fluoride)

Hydrogen sulfide (Sulfur hydride)
Hydroxydimethylarsine oxide (Cacodylic acid)
Indeno(1,2,3-cd)pyrene (1,10-(1,2-phenylene)pyrene)
Iodomethane (Methyl iodide)
Iron dextran (Ferric dextran)
Isocyanic acid, methyl ester (Methyl isocyanate)
Isobutyl alcohol (1-Propanol, 2-methyl-)
Isosafrole (Benzene, 1,2-methylenedioxy-4-allyl-)
Kepone (Decachlorooctahydro-1,3,4-Methano-2H-cyclobuta[cd]pentalen-2-one)
Lasiocarpine (2-Butenoic acid, 2-methyl-, 7-[(2,3-dihydroxy-2-(1-methoxyethyl)-3-methyl-1-oxobutoxy)methyl]-2,3,5,7a-tetrahydro-1H-pyrrolizin-1-yl ester)
Lead and compounds, N.O.S.*
Lead acetate (Acetic acid, lead salt)
Lead phosphate (Phosphoric acid, lead salt)
Lead subacetate (Lead, bis(acetato-O)tetrahydroxytri-)
Maleic anhydride (2,5-Furandione)
Maleic hydrazide (1,2-Dihydro-3,6-pyridazinedione)
Malononitrile (Propanedinitrile)
Melphalan (Alanine, 3-[p-bis(2-chloroethyl)amino]phenyl-, L-)
Mercury fulminate (Fulminic acid, mercury salt)
Mercury and compounds, N.O.S.*
Methacrylonitrile (2-Propenenitrile, 2-methyl-)
Methanethiol (Thiomethanol)
Methapyrilene (Pyridine, 2-[(2-dimethylamino)ethyl]-2-thenylamino-)
Metholmyl (Acetimidic acid, N-[(methylcarbamoyl)oxy]thio-, methyl ester
Methoxychlor (Ethane, 1,1,1-trichloro-2,2'-bis(p-methoxyphenyl)-)
2-Methylaziridine (1,2-Propylenimine)
3-Methylcholanthrene (Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-)
Methyl chlorocarbonate (Carbonochloridic acid, methyl ester)
4,4'-Methylenebis(2-chloroaniline) (Benzenamine, 4,4'-methylenebis-(2-chloro-)
Methyl ethyl ketone (MEK) (2-Butanone)
Methyl hydrazine (Hydrazine, methyl-)
2-Methyllactonitrile (Propanenitrile, 2-hydroxy-2-methyl-)
Methyl methacrylate (2-Propenoic acid, 2-methyl-, methyl ester)
Methyl methanesulfonate (Methanesulfonic acid, methyl ester)
2-Methyl-2-(methylthio)propionaldehyde-o-(methylcarbonyl) oxime (Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime)
N-Methyl-N'-nitro-N-nitrosoguanidine (Guanidine, N-nitroso-N-methyl-N'-nitro-)
Methyl parathion (O,O-dimethyl O-(4-nitrophenyl) phosphorothioate)
Methylthiouracil (4-1H-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-)
Mustard gas (Sulfide, bis(2-chloroethyl)-)
Naphthalene
1,4-Naphthoquinone (1,4-Naphthalenedione)
1-Naphthylamine (alpha-Naphthylamine)
2-Naphthylamine (beta-Naphthylamine)
1-Naphthyl-2-thiourea (Thiourea, 1-naphthalenyl-)
Nickel and compounds, N.O.S.*
Nickel carbonyl (Nickel tetracarbonyl)
Nickel cyanide (Nickel (II) cyanide)
Nicotine and salts (Pyridine, (S)-3-(1-methyl-2-pyrrolidinyl)-, and salts)
Nitric oxide (Nitrogen (II) oxide)
p-Nitroaniline (Benzenamine, 4-nitro-)
Nitrobenzine (Benzene, nitro-)
Nitrogen dioxide (Nitrogen (IV) oxide)
Nitrogen mustard and hydrochloride salt (Ethanamine, 2-chloro-, N-(2-chloroethyl)-N-methyl-, and hydrochloride salt)
Nitrogen mustard N-Oxide and hydrochloride salt (Ethanamine, 2-chloro-, N-(2-chloroethyl)-N-methyl-, and hydrochloride salt)
Nitroglycerine (1,2,3-Propanetriol, trinitrate)
4-Nitrophenol (Phenol, 4-nitro-)
4-Nitroquinoline-1-oxide (Quinoline, 4-nitro-1-oxide-)
Nitrosamine, N.O.S.*
N-Nitrosodi-n-butylamine (1-Butanamine, N-butyl-N-nitroso-)
N-Nitrosodiethanolamine (Ethanol, 2,2'-(nitrosoimino)bis-)
N-Nitrosodiethylamine (Ethanamine, N-ethyl-N-nitroso-)
N-Nitrosodimethylamine (Dimethylnitrosamine)
N-Nitroso-N-ethylurea (Carbamide, N-ethyl-N-nitroso-)
N-Nitrosomethylethylamine (Ethanamine, N-methyl-N-nitroso-)
N-Nitroso-N-methylurea (Carbamide, N-methyl-N-nitroso-)
N-Nitroso-N-methylurethane (Carbamic acid, methylnitroso-, ethyl ester)
N-Nitrosomethylvinylamine (Ethenamine, N-methyl-N-nitroso-)
N-Nitrosomorpholine (Morpholine, N-nitroso-)
N-Nitrosonornicotine (Nornicotine, N-nitroso-)
N-Nitrosopiperidine (Pyridine, hexahydro-, N-nitroso-)
Nitrosopyrrolidine (Pyrrole, tetrahydro-, N-nitroso-)
N-Nitrososarcosine (Sarcosine, N-nitroso-)
5-Nitro-o-toluidine (Benzenamine, 2-methyl-5-nitro-)
Octamethylpyrophosphoramide (Diphosphoramide, octamethyl-)
Osmium tetroxide (Osmium (VIII) oxide)
7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid (Endothal)

Paraldehyde (1,3,5-Trioxane, 2,4,6-trimethyl-)
Parathion (Phosphorothioic acid, O,O-diethyl O-(p-nitrophenyl) ester
Pentachlorobenzene (Benzene, pentachloro-)
Pentachlorodibenzo-*p*-dioxins
Pentachlorodibenzofurans
Pentachloroethane (Ethane, pentachloro-)
Pentachloronitrobenzene (PCNB) (Benzene, pentachloronitro-)
Pentachlorophenol (Phenol, pentachloro-)
Phenacetin (Acetamide, N-(4-ethoxyphenyl)-)
Phenol (Benzene, hydroxy-)
Phenylenediamine (Benzenediamine)
Phenylmercury acetate (Mercury, acetatophenyl-)
N-Phenylthiourea (Thiourea, phenyl-)
Phosgene (Carbonyl chloride)
Phosphine (Hydrogen phosphide)
Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester (Phorate)
Phosphorothioic acid, O,O-dimethyl O-[p-((dimethylamino)sulfonyl)phenyl] ester (Famphur)
Phthalic acid esters, N.O.S.* (Benzene, 1,2-dicarboxylic acid, esters, N.O.S.*)
Phthalic anhydride (1,2-Benzenedicarboxylic acid anhydride)
2-Picoline (Pyridine, 2-methyl-)
Polychlorinated biphenyl, N.O.S.*
Potassium cyanide
Potassium silver cyanide (Argentate(1-), dicyano-, potassium)
Pronamide (3,5-Dichloro-N-(1,1-dimethyl-2-propynyl)benzamide)
1,3-Propane sultone (1,2-Oxathiolane, 2,2-dioxide)
n-Propylamine (1-Propanamine)
Propylthiouracil (Undecamethylenediamine, N,N'-bis(2-chlorobenzyl)-, dihydrochloride)
2-Propyn-1-ol (Propargyl alcohol)
Pyridine
Reserpine (Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester)
Resorcinol (1,3-Benzenediol)
Saccharin and salts (1,2-Benzoisothiazolin-3-one, 1,1-dioxide, and salts)
Safrole (Benzene, 1,2-methylenedioxy-4-allyl-)
Selenious acid (Selenium dioxide)
Selenium and compounds, N.O.S.*
Selenium sulfide (Sulfur selenide)
Selenourea (Carbamimidoselenoic acid)
Silver and compounds, N.O.S.*
Silver cyanide
Sodium cyanide
Streptozotocin (D-Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-)
Strontium sulfide
Strychnine and salts (Strychnidin-10-one, and salts)
1,2,4,5-Tetrachlorobenzene (Benzene, 1,2,4,5-tetrachloro-)
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD) (Dibenzo-p-dioxin, 2,3,7,8-tetrachloro-)
Tetrachlorodibenzo-*p*-dioxins
Tetrachlorodibenzofurans
Tetrachloroethane, N.O.S.* (Ethane, tetrachloro-, N.O.S.*)
1,1,1,2-Tetrachlorethane (Ethane, 1,1,1,2-tetrachloro-)
1,1,2,2-Tetrachlorethane (Ethane, 1,1,2,2-tetrachloro-)
Tetrachloroethane (Ethene, 1,1,2,2-tetrachloro-)
Tetrachloromethane (Carbon tetrachloride)
2,3,4,6,-Tetrachlorophenol (Phenol, 2,3,4,6-tetrachloro-)
Tetraethyldithiopyrophosphate (Dithiopyrophosphoric acid, tetraethyl-ester)
Tetraethyl lead (Plumbane, tetraethyl-)
Tetraethylpyrophosphate (Pyrophosphoric acide, tetraethyl ester)
Tetranitromethane (Methane, tetranitro-)
Thallium and compounds, N.O.S.*
Thallic oxide (Thallium (III) oxide)
Thallium (I) acetate (Acetic acid, thallium (I) salt)
Thallium (I) carbonate (Carbonic acid, dithallium (I) salt)
Thallium (I) chloride
Thallium (I) nitrate (Nitric acid, thallium (I) salt)
Thallium selenite
Thallium (I) sulfate (Sulfuric acid, thallium (I) salt)
Thioacetamide (Ethanethioamide)
Thiosemicarbazide (Hydrazinecarbothioamide)
Thiourea (Carbamide thio-)
Thiuram (Bis(dimethylthiocarbamoyl) disulfide)
Toluene (Benzene, methyl-)
Toluenediamine (Diaminotoluene)
o-Toluidine hydrochloride (Benzenamine, 2-methyl-, hydrochloride)
Tolylene diisocyanate (Benzene, 1,3-diisocyanatomethyl-)
Toxaphene (Camphene, octachloro-)
Tribromomethane (Bromoform)
1,2,4-Trichlorobenzene (Benzene, 1,2,4-trichloro-)
1,1,1-Trichloroethane (Methyl chloroform)
1,1,2-Trichloroethane (Ethane, 1,1,2-trichloro-)
Trichloroethene (Trichloroethylene)
Trichloromethanethiol (Methanethiol, trichloro-)
Trichloromonofluoromethane (Methane, trichlorofluoro-)
2,4,5-Trichlorophenol (Phenol, 2,4,5-trichloro-)
2,4,6-Trichlorophenol (Phenol, 2,4,6-trichloro-)
2,4,5-Trichlorophenoxyacetic acid (2,4,5-T) (Acetic acid, 2,4,5-trichlorophenoxy-)
2,4,5-Trichlorophenoxypropionic acid (2,4,5-TP) (Silvex) (Propionoic acid, 2-(2,4,5-trichlorophenoxy)-)

Trichloropropane, N.O.S.* (Propane, trichloro-, N.O.S.*)
1,2,3-Trichloropropane (Propane, 1,2,3-trichloro-)
O,O,O-Triethyl phosphorothioate (Phosphorothioic acid, O,O,O-triethyl ester)
sym-Trinitrobenzene (Benzene, 1,3,5-trinitro-)
Tris(1-azridinyl) phosphine sulfide (Phosphine sulfide, tris(1-aziridinyl-)
Tris(2,3-dibromopropyl) phosphate (1-Propanol, 2,3-dibromo-, phosphate)
Trypan blue (2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl(1,1'-biphenyl)-4,4'-diyl)bis(azo)]bis(5-amino-4-hydroxy-, tetrasodium salt)
Uracil mustard (Uracil 5-[bis(2-chloroethyl)amino]-)
Vanadic acid, ammonium salt (ammonium vanadate)
Vanadium pentoxide (Vanadium (V) oxide)
Vinyl chloride (Ethene, chloro-)
Zinc cyanide
Zinc phosphide

EXAMPLES of EXPLOSIVE MATERIALS
(This list is not to be considered complete.)

The following is the 1976 List of Explosive Materials subject to regulation under 18 U.S.C. Chapter 40. Included are both explosives (including detonators) required by law to be published in the Federal Register, and blasting agents. It is intended that the list included any and all mixtures containing any of the materials on the list. Materials constituting blasting agents are marked by an asterisk*. Although an explosive material may not be on the list, this does not mean that the material is not within the coverage of the law if it otherwise meets the statutory definition in 18 U.S.C. 841. Explosive materials are listed alphabetically by their common names followed by chemical names and synonyms in brackets.

A

Acetylides of heavy metals.
Aluminum containing polymeric propellant.
Aluminum ophorite explosive.
Amatex-20 [40% TNT, 20% RDX, 40% ammonium nitrate].
Amatex-30 [40% TNT, 30% RDX, 30% ammonium nitrate].
Amatex-40 [40% TNT, 40% RDX, 20% ammonium nitrate].
Amatol.
Ammonal.
Ammonium nitrate explosive mixtures (cap sensitive).
* Ammonium nitrate explosive mixtures (not cap sensitive).
Aromatic nitro-explosive mixture.
Ammonium perchlorate having particle size less than 45 microns.
Ammonium perchlorate composite propellant.
Ammonium picrate [picrate of ammonia].
Ammonium salt lattice with isomorphously substituted inorganic salts.
* ANFO [ammonium nitrate-fuel oil].

B

Baratol [67% barium nitrate, 33% TNT].
Baronal [50% barium nitrate, 35% TNT, 15% aluminum].
BEAF [1,2-bis (2,2-difluoro-2-nitroacetoxyethane)].
Black powder.
* Blasting agents, nitro-carbo-nitrates, including non-cap sensitive slurry and water-gel explosives.
Blasting caps.
Blasting gelatin.
Blasting powder.
BTNEC [bis (trinitroethyl) carbonate].
BTNEN [bis (trinitroethyl) nitramine].
BTTN [1,3,4 butanetriol trinitrate].
Butyl tetryl.

C

Calcium nitrate explosive mixture.
Carboxy-terminated propellant.
Cellulose hexanitrate explosive mixture.
Chlorates and red phosphorus mixture.
Chlorates and sulphur mixture.
Composition A-3 [91% RDX, 9% Wax].
Composition B [40% TNT, 60% RDX].
Composition C-4 [91% RDX, 9% plasticizer].
Copper acetylide.
Crystalline picrate with lead azide explosive mixture.
Cyanuric triazide.
Cyclotrimethylenetrinitramine [RDX].
Cyclotetramethylenetetranitramine.
Cyclotol [75% RDX, 25% TNT].

D

DATB [diaminotrinitrotetramethylene tetranitramine].
DATNB [diaminotrinitrobenzene].
DDNP [diazodinitrophenol].
DEGDN [diethyleneglycol dinitrate].
* Delay powders.
Detonating cord.
Detonators.
Dimethylol dimethyl methane dinitrate composition.
Dinitroethyleneurea.
Dinitroglycerine.
Dinitrophenol.
Dinitrophenolates.
Dinitrophenyl hydrazine.
Dinitroresorcinol.
Dinitrotoluene-sodium nitrate explosive mixtures.
Dipicryl sulfone.
Dipicrylamine.
DNDP [dinitropentano nitrile].
DNPA [2,2-dinitropropyl acrylate].
Dynamite.

E

EDNP [ethyl 4,4-dinitropentanoate].
Erythritol tetranitrate explosives.

Esters of nitro-substituted alcohols.
EGDN [ethylene glycol dinitrate].
Ethyl-tetryl.
Explosive conitrates.
Explosive gelatins.
Explosive mixtures containing oxygen releasing inorganic salts and hydrocarbons.
Explosive mixtures containing oxygen releasing inorganic salts and nitro bodies.
Explosive mixtures containing oxygen releasing inorganic salts and water insoluble fuels.
Explosive mixtures containing oxygen releasing inorganic salts and water soluble fuels.
Explosive mixtures containing sensitized nitromethane.
Explosive nitro compounds of aromatic hydrocarbons.
Explosive organic nitrate mixtures.
Explosive liquids.
Explosive powders.

F

Fulminate of mercury.
Fulminate of silver.
Fulminating gold.
Fulminating mercury.
Fulminating platinum.
Fulminating silver.

G

Gelatinized nitrocellulose.
Gem-dinitro aliphatic explosive mixtures.
Guanyl nitrosamino guanyl tetrazene.
Guanyl nitrosamino guanylidene hydrazine.
Guncotton.

H

Heavy metal azides.
Hexanite.
Hexanitrodiphenylamine.
Hexanitrostilbene.
Hexogen [RDX].
Hexogene or octogene and a nitrated N-methylaniline.
Hexolites.
HMX [cyclo-1,2,3,7-tetramethylene-2,4,6,8-tetranitramine; Octogen].
Hydrazinium nitrate.
Hydrazinium nitrate/hydrazine/aluminum explosive system.
Hydrazoic acid.

I

Igniter cord.
Igniters.

K

KDNBF [potassium dinitrobenzo-furoxane].

L

Lead azide.
Lead mannite.
Lead mononitroresorcinate.
Lead picrate.
Lead salts, explosive.
Lead styphnate [styphnate of lead, lead trinitroresorcinate].
Liquid nitrated polyol and trimethylolethane.
Liquid oxygen explosives.

M

Magnesium ophorite explosives.
Mannitol hexanitrate.
MDNP [methyl 4,4-dinitropentanoate].
Mercuric fulminate.
Mercury oxalate.
Mercury tartrate.
Minol-2 [40% TNT, 40% ammonium nitrate, 20% aluminum].
Mononitrotoluene-nitroglycerin mixture.
Monopropellants.

N

NIBTN [nitroisobuta metriol trinitrate].
Nitrate sensitized with gelled nitroparaffin.
Nitrated carbohydrate explosive.
Nitrated glucoside explosive.
Nitrated polyhydric alcohol explosives.
Nitrates of soda explosive mixtures.
Nitric acid and a nitro aromatic compound explosive.
Nitric acid and carboxylic fuel explosive.
Nitric acid explosive mixtures.
Nitro aromatic explosive mixtures.
Nitro compounds of furane explosive mixtures.
Nitrocellulose explosive.
Nitroderivative of urea explosive mixture.
Nitrogelatin explosive.
Nitrogen trichloride.
Nitrogen tri-iodide.
Nitroglycerine [NG, RNG, nitro, glyceryl trinitrate, trinitroglycerine].
Nitroglycide.
Nitroglycol [ethylene glycol dinitrate, EGDN].
Nitroguanidine explosives.
Nitroparaffins and ammonium nitrate mixtures.
Nitronium perchlorate propellant mixtures.
Nitrostarch.
Nitro-substituted carboxylic acids.
Nitrourea.

O

Octogen [HMX].
Octol [75% HMX, 25% TNT].
Organic amine nitrates.
Organic nitramines.
Organic peroxides.

P

Pellet powder.
Penthrinite composition.
Pentolite.
Perchlorate explosive mixtures.
Peroxide based explosive mixtures.
PETN [nitropentaerythrite, pentaerythrite tetranitrate, pentaerythritol tetranitrate].
Picramic acid and its salts.
Picramide.
Picrate of potassium explosive mixtures.
Picratol.
Picric acid.
Picryl chloride.
Picryl fluoride.
PLX [95% nitromethane, 5% ethylenediamine].
Polynitro aliphatic compounds.
Polyolpolynitrate-nitrocellulose explosive gels.
Potassium chlorate and lead sulfocyanate explosive.
Potassium nitroaminotetrazole.

R

RDX [cyclonite, hexogen, T4, cyclo-1,3,5-trimethylene-2,4,6-trinitramine; hexahydro-1,3,5-trinitro-5-triazine].

S

Safety fuse.
Salts of organic amino sulfonic acid explosive mixture.
Silver acetylide.
Silver azide.
Silver fulminate.
Silver oxalate explosive mixtures.
Silver styphnate.
Silver tartrate explosive mixtures.
Silver tetrazene.
Slurried explosive mixtures of water, inorganic oxidizing salt, gelling agent, fuel and sensitizer.
Smokeless powder.
Sodatol.
Sodium amatol.
Sodium dinitro-ortho-cresolate.
Sodium nitrate-potassium nitrate explosive mixture.
Sodium picramate.
Squibs.
Styphnic acid.

T

Tacot [tetranitro-2,3,5,6-dibenzo-1,3a,4,6a-tetrazapentalene].
TATNB [triaminotrinitrobenzene].
TEGDN [triethylene glycol dinitrate].
Tetrazene [tetracene, tetrazine, 1(5-tetrazolyl)-4-guanyl tetrazene hydrate].
Tetranitrocarbazole.
Tetranitromethane explosive mixtures.
Tetryl [2,4,6 tetranitro-N-methylaniline].
Tetrytol.
Thickened inorganic oxidizer salt slurried explosive mixture.
TMETN [trimethylolethane trinitrate].
TNEF [trinitroethyl formal].
TNEOC [trinitroethylorthocarbonate].
TNEOF [trinitroethyl orthoformate].
TNT [trinitrotoluene, trotyl, trilite, triton].
Torpex.
Tridite.
Trimethylol ethyl methane trinitrate composition.
Trimethylolthane trinitrate-nitrocellulose.
Trimonite.
Trinitroanisole.
Trinitrobenzene.
Trinitrobenzoic acid.
Trinitrocresol.
Trinitro-meta-cresol.
Trinitronaphthalene.
Trinitrophenetol.
Trinitrophloroglucinol.
Trinitroresorcinol.
Tritonal.

U

Urea nitrate.

W

Water bearing explosives having salts of oxidizing acids and nitrogen bases, sulfates, or sulfamates.

X

Xanthamonas hydrophilic colloid explosive mixture.

EXAMPLES OF OXIDIZERS

The following are examples of classes of compounds which are oxidizers. It is not a complete listing:

Chlorates
Chlorites
Hypochlorites
HTH (High Test Hypochlorite)
Chromic Acid
Nitrates
Fuming nitric acid
Perchlorates
Permanganates
Peroxides, organic or inorganic
Dichromates
Persulfites
Cyanuric chloride
Nitrosyl chloride

For the purpose of packing for transportation, 49 CFR 173.151 provides information:

An oxidizer is a substance such as chlorate, permanganate, inorganic peroxide, or a nitrate, that yields oxygen readily to stimulate the combustion of organic matter.

SOURCES OF HELP

The following are some examples. A listing does not constitute an endorsement by the Georgia EPD, and in all cases consult the Yellow Pages of the telephone directory.

I. Suppliers of 55 gallon and larger D.O.T. 17H spec. approved steel drums:

1. McConnell Drum Service — Telephone: (404)451-1100
   5856 New Peachtree Road
   Doraville, Georgia
   55 gallon in stock; can get larger ones.

2. Bernath Barrel and Drum Co. — Telephone: (404)696-6447
   1840 Dickerson Road
   Mableton, Georgia
   Also has steel "overpacks" of 80 gallon capacity.

3. Tri-State Steel Drum Co. — Telephone: (404)891-9726
   Post Office Box 9
   Graysville, Georgia
   Has only 55 gallon drums.

II. Suppliers of smaller size steel inner containers, D.O.T. approved 24 gauge steel, open head:

1. Inland Steel Container Co. — Telephone: (404)691-8738
   5553 Tulane Drive, S.W.
   Atlanta, Georgia
   Has 5 gallon in stock, can obtain 10 gallon.
   Also has steel pail with lining.

III. Complete Lab. Pack services:

1. MKC Enterprises — Telephone: (404)457-1341
   Doraville, Georgia

2. O. H. Materials, Inc. — Telephone: (404)788-3834
   90 Almon Road
   Covington, Georgia

3. HAZTECH Inc. — Telephone: (404)981-9332
   Atlanta, Georgia

4. Chemical Waste Management — Telephone: (404)952-0444
   Will send technicians, separate, pack, and ship your waste to their site.
   One rough estimate given was 9 drums for $1,000.00. This charge is variable.

5. G.S.X. Inc. Telephone: (803)452-5003
Route 1, Post Office Box 255
Pinewood, South Carolina 29125
Same as 4.

6. B & W Services, Inc. Telephone: (904)473-7222
Post Office Drawer 230
Keystone Heights, Florida 32656

7. Rollins Environmental Services Telephone: (504)778-1234
Post Office Box 73877
Baton Rouge, Louisiana 70807
Same as 4.

8. Laidlaw Environmental Service Telephone: (919)342-6106
Route 11, Box 3
Reidsville, North Carolina 27320

9. Ashland Chemicals Telephone: (912)232-4305
Post Office Box 1888
Savannah, Georgia 31498

IV. Inert, absorbent packing material:

Vermiculite is frequently used in planting and may be sold at nurseries.

Kitty Litter may be sold at discount stores such as a K-Mart or local grocery stores.

There may be other inert materials which will support a container of waste and absorb a liquid in case of damage.

SOME USEPA APPROVED HAZARDOUS WASTE DISPOSAL SITES

The following are nearest to Georgia:

1. Chemical Waste Management of Alabama
   Post Office Box 1200
   Livingston, Alabama
   Telephone: (205)652-9531
   in Atlanta: (404)952-0444

2. GSX Services of South Carolina
   Post Office Box 158
   Pinewood, South Carolina
   Telephone: (803)452-5003

T.S.C.A. Approved Facilities for PCB Incineration:

3. Rollins Environmental Service
   Post Office Box 609
   Deer Park, Texas
   Telephone: (713)479-6001

4. ENSCO, Inc.
   Post Office Box 1975
   Eldorado, Arkansas
   Telephone: (501)863-7173

5. Chemical Waste Management (#1 above) can dispose of up to 500 ppm PCB.

GEORGIA HAZARDOUS WASTE MANAGEMENT ACT

Discussion and Regulations Governing
Disposal of Laboratory Wastes in
LAB. PACKS

ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 265

[SWH-FRL 1960-5]

Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities

AGENCY: Environmental Protection Agency.

ACTION: Interim final rule and interim final amendments to rules and request for comments.

SUMMARY: The Environmental Protection Agency (EPA) has issued standards applicable to owners and operators of hazardous waste management facilities as required by the Resource Conservation and Recovery Act (RCRA). One of these standards bans the disposal of most containerized liquid hazardous waste in landfills, effective November 19, 1981. As a result of reconsideration of this restriction, EPA is today promulgating an interim final rule to allow the disposal of small containers of liquid and solid hazardous waste in landfills provided that the wastes are placed in overpacked drums (lab packs) in the manner specified in today's rule. The purpose of today's rule is to provide an environmentally sound disposal option for generators of small containers of hazardous wastes, such as laboratories.

DATES: Interim final rule and interim final amendments effective November 17, 1981.

COMMENT DATE: The Agency will accept comments on this rule and amendments until January 18, 1982.

ADDRESSES: Comments should be addressed to Deneen M. Shrader, Docket Clerk, Office of Solid Waste, (WH-562), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, telephone (202) 755-9173. Comments on today's interim final rule and amendments should identify the regulatory docket as follows: "Section 3004—Lab packs."

FOR FURTHER INFORMATION CONTACT: The RCRA hazardous waste hotline, toll free at (800) 424-9346 (544-1404 in Washington, D.C.). For technical information contact Kenneth Shuster, Program Manager, Land Disposal Branch, Office of Solid Waste (WH-564), U.S. Environmental Protection Agency, 401 M Street, S.W., Washington, D.C. 20460, telephone (202) 755-9125.

SUPPLEMENTARY INFORMATION:

I. Introduction

On May 19, 1980, EPA promulgated hazardous waste regulations in 40 CFR Parts 260-265 (45 FR 33066 *et seq.*) which established, in conjunction with earlier regulations promulgated on February 26, 1980 (45 FR 12721 *et seq.*), the principal elements of the hazardous waste management program under Subtitle C of the Resource Conservation and Recovery Act of 1976, as amended (42 U.S.C. 6921, *et seq.*). Since that time, the Agency has received numerous requests to promulgate regulations tailored to the special problems involved in the management of smaller quantities of different hazardous wastes. In particular, some commenters have stated that some of the interim status hazardous waste standards for landfills are geared towards large, homogeneous waste streams but are inappropriate for generators, such as laboratories, who produce smaller quantities of many different wastes. For reasons discussed in Sections II and III of this preamble, many of these commenters have requested that the Agency allow these smaller quantities of waste to be disposed of in landfills when packaged in "lab packs."

Laboratory wastes are commonly collected in small containers ranging in size from an ampule to 5 gallon pails. These containers are surrounded by some type of absorbent material such as vermiculite and overpacked in large drums (usually 55 gallon) prior to disposal in a secure landfill. The entire package is commonly called a lab pack.

Although the term lab pack is generally used to refer to a method of disposing of laboratory wastes, today's rule is not limited to the disposal of such wastes. The disposal option authorized by today's rule may be utilized by any type of generator. It is designed to accommodate generators who produce smaller quantities of many different wastes.

Today's amendments are designed to relax two separate prohibitions against the landfilling of lab packs which would otherwise have become effective on November 19, 1981. Section 265.312 allows the burial of containerized liquid ignitable waste in landfills until November 19, 1981. After that date, liquid ignitable waste may not be placed in landfills. Section 265.314 prohibits, after November 19, 1981, the burial of containerized liquid hazardous wastes except very small containers, such as an ampule, or containers designed to hold liquids for a use other than storage, such as a battery or capacitor. (See 45 FR 33213 (May 19, 1980) and 45 FR 33502 (June 29, 1981) for explanations of these prohibitions.) The Agency has received numerous requests to allow lab packs containing liquid and liquid ignitable hazardous wastes to be disposed of in secure landfills after November 19, 1981, the effective date of the prohibitions.

The disposal of hazardous wastes in lab packs is a common practice for many small volume generators (not necessarily small quantity generators as defined in 40 CFR 261.5) including, particularly, commercial research laboratories, school laboratories, and large Governmental laboratories. This represents a general trend away from previous improper disposal methods for these types of wastes, such as mixing these wastes in dumpsters with municipal waste or pouring the wastes down the drain.

Preliminarily, it should be noted that many high school, college and university, or other small laboratories may be small quantity generators and, therefore, need not comply with the full RCRA hazardous waste management regulations provided that the wastes are managed in accordance with § 261.5(g). If generators are small quantity generators as defined in 40 CFR 261.5, their wastes, including those placed in lab packs, are not subject to the RCRA regulations contained in Parts 262 through 267 and Parts 122 through 124, or to the notification requirements of section 3010 of RCRA, provided that the generator complies with § 261.5(g). Hazardous wastes subject to the reduced requirements of § 261.5 may be mixed with non-hazardous wastes and remain subject to these reduced requirements, even though the resultant mixture exceeds the quantity limitations identified in § 261.5, unless the mixture meets any of the characteristics of hazardous waste identified in Subpart C of Part 261.

Several commenters representing laboratories have stated that although they qualify for the small quantity generator exemption, they would prefer to dispose of their hazardous wastes at a RCRA-permitted or interim status hazardous waste landfill. By allowing the disposal of lab packs in hazardous waste landfills, the Agency is providing a practical disposal option for these generators, as well as for the generators who do not qualify for the small quantity generator exemption.

II. Summary of Comments

Most of the comments that the Agency has received on the subject of lab packs have been in responses to the February 20, 1981 amendment to 40 CFR 265.312, which concerns the disposal of ignitable wastes in landfills. These commenters

stated that disposal of lab packs in secure landfills is environmentally sound, provided that certain packaging and pretreatment conditions are followed. The commenters, in general, requested that small containers—ampule to 5-gallon pails—should be allowed to be disposed of in lab packs in landfills. One commenter specifically requested that small containers (one gallon and smaller, approved for DOT shipment) be permanently allowed to be landfilled since these non-leaking, small containers, in cartons and palletized, do not pose a substantial risk to human health and the environment. However, the commenter further stated the EPA could require that small containers be placed in 55-gallon steel drums with the voids packed with absorbent materials before landfilling.

The commenters stated that the techniques for handling lab packs prevent the potential for escape of liquids. Additionally, they stated that the quantity of such waste is small and will not burden landfills that are capable of handling chemical waste. Even if the bottles or cans break or leak, the packing will absorb the liquids. Commenters also stated that isolating materials that may be incompatible is very important (i.e., incompatible materials should not be placed in the same lab pack), since chemicals must not be allowed to react to cause fires or other hazards. Further, one commenter provided a list of substances that he felt should not be allowed to be lab-packed for disposal in landfills because, even in small quantities, these substances present too great a hazard for land disposal.

III. Discussion of the Problem

Many thousands of generators currently generate a variety of hazardous wastes in smaller quantities. Most of these generators are laboratories, including chemistry and biology laboratories in junior and senior high schools, colleges and universities, hospitals and clinics, Governmental agencies with laboratories, large and small research firms, and chemical, pharmaceutical and other manufacturing firms.

Although the number of generators fitting this description is not known, the 15th edition of *Industrial Research Laboratories of the United States* contains information on 10,028 research and development facilities belonging to 6,947 organizations engaged in fundamental and applied research, including development of products and processes. Most of the facilities are owned and operated by industrial firms but some foundations and cooperatively supported units are also covered, as well as university laboratories having research facilities separate from university control. The American Chemical Society's *Directory of College Chemistry Faculties* (which covers two- and four-year colleges and universities) lists approximately 3,200 college departments of chemistry, biochemistry, chemical engineering, or medical-pharmaceutical chemistry, each of which can be expected to have at least one laboratory.

The Agency has received several examples indicating the magnitude of laboratory waste generation. One large university stated that it has more than 2,000 laboratories, each or which generates a wide variety of waste chemicals in small quantities. One company that picks up small quantities of laboratory wastes from generators and then packs and transports the wastes in lab packs for disposal commented that it handled over 25,000 different chemicals in approximately 500,000 small containers in 1980. The containers varied generally from ampules of a few grams to 5-gallon pails. One research laboratory stated that it typically generates well over a thousand such small containers (several milliliters up to about one gallon in size) for disposal each month.

The availability of commercial treatment options for small quantities of hazardous waste is greatly limited. A typical laboratory produces small quantities of many different wastes. The variety and quantity of compounds discarded are often unpredictable. Often the specific waste characteristics are unknown and the cost to characterize such wastes is prohibitive. Commercial treatment facilities (e.g., incinerators and solvent recovery operations) typically accept only reasonably sized lots of well-characterized liquid wastes delivered in a form which makes them readily suitable for treatment. Diverse laboratory wastes in small containers are not considered to be readily suitable for treatment by operators of these facilities.

Because in many cases the contents of each small container of laboratory or hazardous waste cannot be precisely defined, commercial waste handlers are reluctant to incinerate them. Proper incineration requires analysis of waste feeds for identification and designation of principal organic hazardous constituents, a very difficult task with respect to diverse drummed wastes.

IV. Solutions

Based on the lack of available treatment or disposal options for laboratory wastes and on the Agency's conclusion that landfill disposal of small containers of hazardous wastes in overpacked drums is environmentally sound, the Agency has decided to allow lab packs to be disposed of in hazardous waste landfills.

The Agency believes that the disposal of lab packs in landfills is an environmentally sound practice. Although the drums in which the laboratory wastes are overpacked will eventually degrade, the Agency believes that by having, at a minimum, sufficient absorbent material in each drum to completely absorb all of the liquid content of the inside containers, lab packs will not contribute substantial volumes of liquids to landfill leachate. Today's requirement that the outside container be full (i.e., absorbent material to the top of the drum with no void space), will assure that no breakage or rupture of the inside containers will occur during handling and placement.

One disposal alternative, other than disposal in lab packs, is to mix liquid wastes with an absorbent material before placement in a drum, or to pour liquid wastes directly into drums with sufficient absorbent material to solidify the liquid wastes. Provided that the liquids are sufficiently absorbed or solidified to remove free liquids, full drums of such treated wastes are already allowed to be landfilled under the regulations, even after the § 265.314 ban on containerized liquids in landfills takes effect. This method differs from packaging in lab packs in that liquid wastes are absorbed prior to disposal rather than contained in inside containers. The effectiveness of the absorption is therefore observable. While the option of mixing before disposal may be viable for some generators, based on the chemical handling procedures of many laboratories, disposal in overpacked inside containers may be much more practical and often safer for small quantities of wastes.

V. DOT and EPA Coordination

The Department of Transportation (DOT) has issued regulations governing the transport of hazardous materials at 49 CFR Parts 171–179. Those regulations specify packaging requirements applicable to the transport of hazardous materials in commerce within the United States. However, the DOT regulations do not cover all hazardous wastes and are not applicable to all lab packs (e.g., lab packs disposed of on-site).

It should be noted that EPA has previously adopted certain DOT regulations in its Standards Applicable to Generators of Hazardous Waste (40

CFR Part 262). Pursuant to § 262.30, a generator who transports hazardous waste or offers hazardous waste for transport off-site, must package the waste in accordance with applicable DOT regulations on packaging under 49 CFR Parts 173, 178, and 179. Therefore, any generator transporting lab packs for off-site disposal is already required to conform with all applicable DOT requirements for packaging.

The objective of the DOT regulations is to insure the safe transport of hazardous materials. EPA's concern in promulgating today's regulation is to insure the safe disposal of hazardous wastes. To the extent possible, EPA has adopted DOT specifications for the packaging of lab packs for disposal. However, because the objective of the DOT regulations varies somewhat from the purpose of today's rule, in some cases the requirements of § 265.316 are different, or stricter than the DOT requirements. However, the Agency has attempted to ensure consistency with the requirements of DOT and to avoid the imposition of conflicting requirements wherever possible.

Today's rule applies certain DOT specifications to some situations which are outside of DOT's jurisdiction and thus are not directly covered by the DOT regulations (e.g., lab packs being disposed of on-site). On the other hand, generators or transporters who are already covered by the DOT regulations must still comply with all applicable sections of those regulations. Thus lab packs offered for transportation may, as in the past, be subject to additional DOT requirements such as weight and container size limitations. In addition, DOT prohibits the shipment of corrosive liquids in metal outside drums or barrels (see 49 CFR 173.25) unless an exemption is obtained in accordance with 49 CFR Part 107 Subpart B. Since EPA is requiring metal outside containers for purposes of disposal (§ 265.316(b)), persons subject to the DOT regulations wishing to dispose of corrosive liquids in lab packs must first obtain an exemption from DOT.

VI. Content of the Regulation

To achieve the objectives discussed above, today's regulation adds a new section to Part 265 (§ 265.316) and makes conforming amendments to §§ 265.312 and 265.314. In accordance with today's regulation, wastes to be disposed of in lab packs must be packaged in sealed inside containers. The inside containers must be of a design and constructed of a material that will not react dangerously with, be decomposed by, or be ignited by, the waste held therein. In addition, the inside containers must be of the size and type specified in the DOT hazardous materials regulations (49 CFR Parts 173, 178 and 179), if those regulations specify a particular inside container for that waste. The requirement of using DOT-specified inside containers for purposes of packaging wastes for disposal in lab packs is applicable whether or not the lab pack will be regulated by DOT for purposes of transportation. The reason that EPA is adopting DOT's specifications for inside containers is that EPA seeks to achieve the same objective that DOT has defined in its regulations, namely that the inside containers safely and effectively hold a material without leakage. Based on the fact that EPA seeks to achieve the same objective, the Agency has decided to employ the DOT specifications for inside containers.

The DOT hazardous materials regulations do not specify inside containers for all hazardous wastes, however. Therefore, for any waste not addressed in the DOT regulations, inside containers must meet only the general performance standard (i.e., be of a design and constructed of a material that will not react dangerously with, be decomposed by, or be ignited by, the waste held therein).

In addition to the requirement that the inside containers be non-leaking, the Agency has also included a requirement in § 265.316(a) that all inside containers be tightly and securely sealed. This requirement is intended to help insure that no waste leaks from the inside containers before the lab pack is placed in the landfill.

Section 265.316(d) prohibits the placement of incompatible wastes in the same outside container. The purpose of this restriction is to prevent any potentially dangerous reaction between wastes packaged in the same lab pack. The DOT hazardous materials regulations contain a similar provision. Those regulations state that the offering of packages of hazardous materials in the same packaging, freight container, or overpack, with other hazardous materials, the mixture of contents of which would be liable to cause a dangerous evolution of heat or gas or produce corrosive materials, is forbidden except as specified (see 49 CFR 173.21). EPA has included a similar provision, however, because not all hazardous wastes and thus not all lab packs will be covered by the DOT regulations.

In addition to the prohibition against co-packaging incompatible wastes contained in § 265.316, it should be noted that § 265.313 already prohibits the placement of incompatible wastes or incompatible wastes and materials in the same landfill cell unless § 265.17(b) is complied with. Section 265.17(b) states that: the mixture or commingling of incompatible wastes or incompatible wastes and materials must be conducted so that it does not: (1) Generate extreme heat or pressure, fire or explosion, or violent reaction; (2) Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health; (3) Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) Damage the structural integrity of the device or facility containing the waste; or (5) Through other like means threaten human health or the environment. Section 265.313 is, of course, applicable to the placement of lab packs in landfills.

Section 265.316(b) deals with the outside container and the type of absorbent material required. EPA is requiring that the inside containers be overpacked in DOT specification open-head metal drums no larger than 110 gallons in capacity and surrounded by, at a minimum, a sufficient quantity of absorbent material to completely absorb all of the liquid contents of the inside containers. DOT specifications for containers are contained in 49 CFR Parts 178 and 179.

All lab packs must be in DOT specification outside drums, whether or not the wastes contained in the lab pack are covered by the DOT regulations. The reason for this is that these drums have already been determined by DOT to be sturdy enough to safely hold hazardous materials. The 110-gallon capacity limitation coincides with the maximum size DOT specification container. In addition, this capacity limitation is designed to ensure that lab packs will be used for their intended purpose, i.e., the disposal of smaller quantities of many different wastes.

In many cases, the DOT regulations allow a variety of acceptable packaging options including metal, fiberboard, plastic or wooden containers. However, for purposes of disposal, EPA is

requiring that all outside containers be metal. The need for metal drums is due to the nature of disposal. Allowing fiber or wooden containers to be used as an outside container would increase the risk of breaking or rupturing the inside containers because fiber or wooden containers are more likely to be ruptured or crushed during handling and after placement in a landfill than are metal drums. The drums must be of the open head variety to allow the proper placement of the inside containers and absorbent.

The inside containers must be overpacked and surrounded, at a minimum, by a sufficient quantity of absorbent material to completely absorb all the liquid contents of the inside containers. In addition, the outside container must be full after packing with the inside containers and absorbent material to prevent breakage of inside containers. The absorbent material used must not be capable of reacting dangerously with, being decomposed by, or being ignited by the contents of the inside containers in accordance with § 265.17(b). The Agency has not specified the type of absorbent that must be used in a lab pack. However, based on comments received, it appears that vermiculite and fuller's earth are commonly used because of their price, availability, and the fact that they will not react dangerously with most wastes.

The Agency has not specified a maximum limit on the size of the inside containers except where the DOT regulations impose a specific requirement. However, the total amount of liquid which may be placed in the lab pack will be limited by the amount of absorbent material required. Of course, the higher the absorptive capacity of the absorbent material used for overpacking, the more liquid the lab pack may contain.

generate toxic gases, vapors, or fumes when exposed to acidic or basic conditions characterized by a pH between 2 and 12.5. All other reactive wastes will explode or release toxic gases, vapors, or fumes, when they are at standard pressure and temperature; when they are mixed with or exposed to water; when they are subject to a strong initiating force; or when they are heated under confinement, or else are DOT-forbidden, Class A, or Class B explosives. While it is possible to isolate cyanide- and sulfide-bearing wastes in a lab pack from wastes or conditions that would cause them to generate toxic gases, vapors, or fumes, it is much more difficult to protect other reactive wastes from conditions which would cause them to explode or otherwise dangerously react, even when packaged in a lab pack. Therefore, today's regulation contains a ban on the landfill disposal of reactive wastes, other than cyanide- and sulfide-bearing wastes, in lab packs unless the waste is rendered non-reactive prior to packaging.

It should be noted that some wastes, such as oxidizers, may meet a characteristic of reactivity as well as the characteristic of ignitability. Although, pursuant to today's rule, ignitable wastes may be landfilled in lab packs, any ignitable waste that also meets a characteristic of reactivity other than § 261.23(a)(5), may not be disposed of in a lab pack unless it is treated or rendered non-reactive prior to packaging.

§ 265.312 Special requirements for ignitable or reactive waste.

(a) Except as provided in paragraph (b) of this section, and in § 265.316, ignitable or reactive waste must not be placed in a landfill, unless the waste and landfill meets all applicable requirements of 40 CFR part 268, and:

(1) The resulting waste, mixture, or dissolution or material no longer meets the definition of ignitable or reactive waste under § 261.21 or § 261.23 of this chapter; and

(2) Section 265.17(b) is complied with.

(b) Except for prohibited wastes which remain subject to treatment standards in subpart D of part 268, ignitable wastes in containers may be landfilled without meeting the requirements of paragraph (a) of this section, provided that the wastes are disposed of in such a way that they are protected from any material or conditions which may cause them to ignite. At a minimum, ignitable wastes must be disposed of in non-leaking containers which are carefully handled and placed so as to avoid heat, sparks, rupture, or any other condition that might cause ignition of the wastes; must be covered daily with soil or other non-combustible material to minimize the potential for ignition of the wastes; and must not be disposed of in cells that contain or will contain other wastes which may generate heat sufficient to cause ignition of the waste.

[47 FR 32368, July 26, 1982, as amended at 55 FR 22686, June 1, 1990]

§ 265.313 Special requirements for incompatible wastes.

Incompatible wastes, or incompatible wastes and materials, (see appendix V for examples) must not be placed in the same landfill cell, unless § 265.17(b) is complied with.

§ 265.314 Special requirements for bulk and containerized liquids.

(a) Bulk or non-containerized liquid waste or waste containing free liquids may be placed in a landfill prior to May 8, 1985 only if:

(1) The landfill has a liner and leachate collection and removal system that meets the requirements of § 264.301(a) of this chapter; or

(2) Before disposal, the liquid waste or waste containing free liquids is treated or stabilized, chemically or physically (e.g., by mixing with an absorbent solid), so that free liquids are no longer present.

(b) Effective May 8, 1985, the placement of bulk or non-containerized liquid hazardous waste or hazardous waste containing free liquids (whether or not absorbents have been added) in any landfill is prohibited.

(c) Containers holding free liquids must not be placed in a landfill unless:

(1) All free-standing liquid (i) has been removed by decanting, or other methods, (ii) has been mixed with ab-

sorbent or solidified so that free-standing liquid is no longer observed or (iii) had been otherwise eliminated; or

(2) The container is very small, such as an ampule; or

(3) The container is designed to hold free liquids for use other than storage, such as a battery or capacitor; or

(4) The container is a lab pack as defined in § 265.316 and is disposed of in accordance with § 265.316.

(d) To demonstrate the absence or presence of free liquids in either a containerized or a bulk waste, the following test must be used: Method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods." [EPA Publication No. SW-846].

(e) The date for compliance with paragraph (a) of this section is November 19, 1981. The date for compliance with paragraph (c) of this section is March 22, 1982.

(f) Effective November 8, 1985, the placement of any liquid which is not a hazardous waste in a landfill is prohibited unless the owner or operator of such landfill demonstrates to the Regional Administrator, or the Regional Administrator determines, that:

(1) The only reasonably available alternative to the placement in such landfill is placement in a landfill or unlined surface impoundment, whether or not permitted or operating under interim status, which contains, or may reasonably be anticipated to contain, hazardous waste; and

(2) Placement in such owner or operator's landfill will not present a risk of contamination of any underground source of drinking water (as that term is defined in § 144.3 of this chapter).

(Approved by the Office of Management and Budget under control number 2050-0037)

[45 FR 33232, May 19, 1980, as amended at 47 FR 12318, Mar. 22, 1982; 47 FR 32369, July 26, 1982; 50 FR 18374, Apr. 30, 1985; 50 FR 28750, July 15, 1985; 51 FR 19177, May 28, 1986]

§ 265.315 Special requirements for containers.

Unless they are very small, such as an ampule, containers must be either:

(a) At least 90 percent full when placed in the landfill; or

(b) Crushed, shredded, or similarly reduced in volume to the maximum practical extent before burial in the landfill.

[50 FR 16048, Apr. 23, 1985]

§ 265.316 Disposal of small containers of hazardous waste in overpacked drums (lab packs).

Small containers of hazardous waste in overpacked drums (lab packs) may be placed in a landfull if the following requirements are met:

(a) Hazardous waste must be packaged in non-leaking inside containers. The inside containers must be of a design and constructed of a material that will not react dangerously with, be decomposed by, or be ignited by the waste held therein. Inside containers must be tightly and securely sealed. The inside containers must be of the size and type specified in the Department of Transportation (DOT) hazardous materials regulations (49 CFR parts 173, 178 and 179), if those regulations specify a particular inside container for the waste.

(b) The inside containers must be overpacked in an open head DOT-specification metal shipping container (49 CFR parts 178 and 179) of no more than 416-liter (110 gallon) capacity and surrounded by, at a minimum, a sufficient quantity of absorbent material to completely absorb all of the liquid contents of the inside containers. The metal outer container must be full after packing with inside containers and absorbent material.

(c) The absorbent material used must not be capable of reacting dangerously with, being decomposed by, or being ignited by the contents of the inside containers, in accordance with § 265.17(b).

(d) Incompatible wastes, as defined in § 260.10(a) of this chapter, must not be placed in the same outside container.

(e) Reactive waste, other than cyanide- or sulfide-bearing waste as defined in § 261.23(a)(5) of this chapter, must be treated or rendered non-reactive prior to packaging in accordance with paragraphs (a) through (d) of

this section. Cyanide- and sulfide-bearing reactive waste may be packaged in accordance with paragraphs (a) through (d) of this section without first being treated or rendered non-reactive.

(f) Such disposal is in compliance with the requirements of 40 CFR part 268. Persons who incinerate lab packs according to the requirements in 40 CFR 268.42(c)(1) may use fiber drums in place of metal outer containers. Such fiber drums must meet the DOT specifications in 49 CFR 173.12 and be overpacked according to the requirements in paragraph (b) of this section.

(Part 268 deals with Land Disposal Restrictions)

Cyanide Containing Wastes

The Land Disposal Restrictions require that the listed cyanide containing wastes must be treated before landfilling. Additionally, 40 CFR Part 265.17 requires that wastes which are "reactive," ie: generate cyanide, must be protected from sources of reaction. Part 265.17(b)(2) further states that "reactive" wastes must not be co-mingled with other materials in such a way as to produce toxic mists; and finally, under 265.17(b)(5), "reactive" wastes must not threaten human health or the environment.

Conditions in a sanitary landfill can become acidic, and may generate some heat. Additionally, over a period of time metal drums can corrode and expose their contents. Some cyanide wastes can dissolve and migrate to the underground water. Since a simple procedure for cyanide destruction exists, a waste of any kind containing amenable cyanide must be treated as described elsewhere in this manual before inclusion in a Lab. Pack.

§ 264.317 Special requirements for hazardous wastes FO20, FO21, FO22, FO23, FO26, and FO27.

(a) Hazardous Wastes FO20, FO21, FO22, FO23, FO26, and FO27 must not be placed in a landfills unless the owner or operator operates the landfill in accord with a management plan for these wastes that is approved by the Regional Administrator pursuant to the standards set out in this paragraph, and in accord with all other applicable requirements of this part. The factors to be considered are:

(1) The volume, physical, and chemical characteristics of the wastes, including their potential to migrate through the soil or to volatilize or escape into the atmosphere;

(2) The attenuative properties of underlying and surrounding soils or other materials;

(3) The mobilizing properties of other materials co-disposed with these wastes; and

(4) The effectiveness of additional treatment, design, or monitoring requirements.

(b) The Regional Administrator may determine that additional design, operating, and monitoring requirements are necessary for landfills managing hazardous wastes FO20, FO21, FO22, FO23, FO26, and FO27 in order to reduce the possibility of migration of these wastes to ground water, surface water, or air so as to protect human health and the environment.

APPLICABLE ASPECTS OF THE LAND DISPOSAL RESTRICTIONS RULES

TREATMENT STANDARDS FOR CERTAIN SOLVENTS

F001-F005 SPENT SOLVENTS	CONCENTRATION (IN MG/L)	
	Wastewaters	Other Wastes
Acetone	0.05	0.59
N-butyl alcohol	5.0	5.0
Carbon disulfide	1.05	4.81
Carbon tetrachloride	.05	.96
Chlorobenzene	.15	.05
Cresols (and cresylic acid)	2.82	.75
Cyclohexanone	.125	.75
1,2-Dichlorobenzene	.65	.125
Ethyl acetate	.05	.75
Ethyl benzene	.05	.053
Ethyl ether	.05	.75
Isobutanol	5.0	5.0
Methanol	.25	.75
Methylene chloride	.20	.96
Methylene chloride (from the pharmaceutical industry)	12.7	.96
Methyl ethyl ketone	0.05	0.75
Methyl isobutyl ketone	0.05	0.33
Nitrobenzene	0.66	0.125
Pyridine	1.12	0.33
Tetrachloroethylene	0.079	0.05
Toluene	1.12	0.33
1,1,1-Trichloroethane	1.05	0.41
1,1,2-Trichloro 1,2,2-Trifluoroethane	1.05	0.96
Trichloroethylene	0.062	0.091
Trichlorofluoromethane	0.05	0.96
Xylene	0.05	0.15

Restricted solvents and treatment levels required in Extraction Procedure Extract (TCLP).

§ 268.32 Waste specific prohibitions—California list wastes.

(a) Effective July 8, 1987, the following hazardous wastes are prohibited from land disposal (except in injection wells):

(1) Liquid hazardous wastes having a pH less than or equal to two (2.0);

(2) Liquid hazardous wastes containing polychlorinated biphenyls (PCBs) at concentrations greater than or equal to 50 ppm;

(3) Liquid hazardous wastes that are primarily water and contain halogenated organic compounds (HOCs) in total concentration greater than or equal to 1,000 mg/l and less than 10,000 mg/l HOCs.

(b)—(c) [Reserved]

(d) The requirements of paragraphs (a) and (e) of this section do not apply until:

(1) July 8, 1989 where the wastes are contaminated soil or debris not resulting from a response action taken under section 104 or 106 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or a corrective action taken under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Between July 8, 1987 and July 8, 1989, the wastes may be disposed in a landfill or surface impoundment only if such disposal is in compliance with the requirements specified in § 268.5(h)(2).

(2) November 8, 1990 where the wastes are contaminated soil or debris resulting from a response action taken under section 104 or 106 of CERCLA or a corrective action taken under Subtitle C of RCRA. Between November 8, 1988, and November 8, 1990, the wastes may be disposed in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in § 268.5(h)(2).

(e) Effective November 8, 1988, the following hazardous wastes are prohibited from land disposal (subject to any regulations that may be promulgated with respect to disposal in injection wells):

(1) Liquid hazardous wastes that contain HOCs in total concentration greater than or equal to 1,000 mg/l and are not prohibited under paragraph (a)(3) of this section; and

(2) Nonliquid hazardous wastes containing HOCs in total concentration greater than or equal to 1,000 mg/kg and are not wastes described in paragraph (d) of this section.

(f) Between July 8, 1987 and November 8, 1988, the wastes included in paragraphs (e)(1) and (e)(2) of this section may be disposed in a landfill or surface impoundment only if such unit is in compliance with the requirements specified in § 268.5(h)(2).

(g) The requirements of paragraphs (a), (d), and (e) of this section do not apply if:

(1) Persons have been granted an exemption from a prohibition pursuant to a petition under § 268.6, with respect to those wastes and units covered by the petition (except for liquid hazardous wastes containing polychlorinated biphenyls at concentrations greater than or equal to 500 ppm which are not eligible for such exemptions); or

(2) Persons have been granted an extension to the effective date of a prohibition pursuant to § 268.5, with respect to those wastes covered by the extension; or

(3) The wastes meet the applicable standards specified in subpart D of this part or, where treatment standards are not specified, the wastes are in compliance with the applicable prohibitions set forth in this section or RCRA section 3004(d).

(h) The prohibitions and effective dates specified in paragraphs (a)(3), (d), and (e) of this section do not apply where the waste is subject to a part 268 subpart C prohibition and effective date for a specified HOC (such as a hazardous waste chlorinated solvent, see e.g., § 268.30(a)).

(i) To determine whether or not a waste is a liquid under paragraphs (a) and (e) of this section and under RCRA section 3004(d), the following test must be used: Method 9095 (Paint Filter Liquids Test) as described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," EPA Publication No. SW-846. (Incorporated by reference, see § 260.11(a) of this chapter.)

(j) Except as otherwise provided in this paragraph, the waste analysis and recordkeeping requirements of § 268.7 are applicable to wastes prohibited under this part or RCRA section 3004(d):

(1) The initial generator of a liquid hazardous waste must test his waste (not an extract or filtrate) in accordance with the procedures specified in § 261.22(a)(1), or use knowledge of the waste, to determine if the waste has a pH less than or equal to two (2.0). If the liquid waste has a pH less than or equal to two (2.0), it is restricted from land disposal and all requirements of part 268 are applicable, except as otherwise specified in this section.

(2) The initial generator of either a liquid hazardous waste containing polychlorinated biphenyls (PCBs) or a liquid or nonliquid hazardous waste containing halogenated organic compounds (HOCs) must test his waste (not an extract or filtrate), or use knowledge of the waste, to determine whether the concentration levels in the waste equal or exceed the prohibition levels specified in this section. If the concentration of PCBs or HOCs in the waste is greater than or equal to the prohibition levels specified in this section, the waste is restricted from land disposal and all requirements of part 268 are applicable, except as otherwise specified in this section.

Appendix III to Part 268—List of Halogenated Organic Compounds Regulated Under § 268.32

In determining the concentration of HOCs in a hazardous waste for purposes of the § 268.32 land disposal prohibition, EPA has defined the HOCs that must be included in the calculation as any compounds having a carbon-halogen bond which are listed in this Appendix (see § 268.2). Appendix III to Part 268 consists of the following compounds:

Volatiles

Bromodichloromethane
Bromomethane
Carbon Tetrachloride
Chlorobenzene
2-Chloro-1,3-butadiene
Chlorodibromomethane
Chloroethane
2-Chloroethyl vinyl ether
Chloroform
Chloromethane
3-Chloropropene
1,2-Dibromo-3-chloropropane
1,2-Dibromomethane
Dibromomethane
Trans-1,4-Dichloro-2-butene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethylene
Trans-1,2-Dichloroethene
1,2-Dichloropropane
Trans-1,3-Dichloropropene
cis-1,3-Dichloropropene
Iodomethane
Methylene chloride
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
Tetrachloroethene
Tribromomethane
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichloromonofluoromethane
1,2,3-Trichloropropane
Vinyl chloride

Semivolatiles

Bis(2-chloroethoxy)ethane
Bis(2-chloroethyl)ether
Bis(2-chloroisopropyl) ether
p-Chloroaniline
Chlorobenzilate
p-Chloro-m-cresol
2-Chloronaphthalene
2-Chlorophenol
3-Chloropropionitrile
m-Dichlorobenzene
o-Dichlorobenzene
p-Dichlorobenzene
3,3'-Dichlorobenzidine
2,4-Dichlorophenol
2,6-Dichlorophenol
Hexachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachloroethane
Hexachloroprophene
Hexachloropropene
4,4'-Methylenebis(2-chloroaniline)
Pentachlorobenzene
Pentachloroethane
Pentachloronitrobenzene
Pentachlorophenol
Pronamide
1,2,4,5-Tetrachlorobenzene
2,3,4,6-Tetrachlorophenol
1,2,4-Trichlorobenzene
2,4,5-Trichlorophenol
2,4,6-Trichlorophenol
Tris(2,3-dibromopropyl)phosphate

Organochlorine Pesticides

Aldrin
alpha-BHC
beta-BHC
delta-BHC
gamma-BHC
Chlordane
DDD
DDE
DDT
Dieldrin
Endosulfan I
Endosulfan II
Endrin
Endrin aldehyde
Heptachlor
Heptachlor epoxide
Isodrin
Kepone
Methoxyclor
Toxaphene

Phenoxyacetic Acid Herbicides

2,4-Dichlorophenoxyacetic acid
Silvex
2,4,5-T

PCBs

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
PCBs not otherwise specified

Dioxins and Furans

Hexachlorodibenzo-p-dioxins
Hexachlorodibenzofuran
Pentachlorodibenzo-p-dioxins
Pentachlorodibenzofuran
Tetrachlorodibenzo-p-dioxins
Tetrachlorodibenzofuran
2,3,7,8-Tetrachlorodibenzo-p-dioxin

constituents from the disposal unit or injection zone for as long as the wastes remain hazardous. Wastes treated in accordance with the treatment standards set by EPA pursuant to RCRA section 3004(m) are not subject to the prohibitions and may be land disposed. The land disposal prohibitions are effective immediately upon promulgation unless the Agency sets another effective date based on the earliest date that adequate alternative treatment, recovery, or disposal capacity which is protective of human health and the environment will be available. The relevant statutory deadlines are as follows:

1. Scheduled Wastes and Newly Listed Wastes

On May 28, 1986 (51 FR 19300), EPA promulgated a schedule for making land disposal restrictions decisions for all hazardous wastes listed or identified by characteristic as of November 8, 1984, excluding solvent and dioxin wastes and the California list wastes which are subject to a statutory schedule. If EPA fails to set treatment standards or grant a "no migration" petition for any of the scheduled wastes by May 8, 1990, all such wastes will be prohibited from land disposal. (Hazardous wastes containing California List constituents are prohibited from land disposal at concentrations which exceed the statutory levels.)

For any hazardous waste identified or listed after November 8, 1984, EPA is required to make a land disposal restriction determination within 6 months of the date of identification or listing. However, there is no automatic prohibition on land disposal if EPA misses a deadline for any newly listed or identified waste.

2. Solvents and Dioxins

On November 7, 1986, EPA promulgated a final rule that established a framework for implementing the congressionally mandated land disposal prohibitions (51 FR 40572). The rule established procedures for establishing treatment standards, for granting nationwide variances from statutory effective dates, for granting extensions of effective dates on a case-by-case basis, for evaluating petitions allowing variances from the treatment standard, and for evaluating petitions demonstrating that continued land disposal is protective of human health and the environment. In addition, the November 7, 1986 final rule established treatment standards and effective dates for wastes included in the first phase of the land disposal prohibitions: certain solvent-containing and dioxin-containing hazardous wastes.

3. California List

Today's rule addresses the second phase of the land disposal restrictions i.e., the California list wastes. The California list consists of liquid hazardous wastes containing certain metals, free cyanides, polychlorinated biphenyls (PCBs), corrosives with a pH of less than or equal to two (2.0), and liquid and nonliquid hazardous wastes containing halogenated organic compounds (HOCs) as described below:

(A) Liquid hazardous wastes, including free liquids associated with any solid or sludge, containing free cyanides at concentrations greater than or equal to 1,000 mg/1.

(B) Liquid hazardous wastes, including free liquids associated with any solid or sludge, containing the following metals (or elements) or compounds of these metals (or elements) at concentrations greater than or equal to those specified below:

(i) Arsenic and/or compounds (as As) 500 mg/1;

(ii) Cadmium and/or compounds (as Cd) 100 mg/1;

(iii) Chromium (VI and/or compounds (as Cr VI)) 500 mg/1;

(iv) Lead and/or compounds (as Pb) 500 mg/1;

(v) Mercury and/or compounds (as Hg) 20 mg/1;

(vi) Nickel and/or compounds (as Ni) 134 mg/1;

(vii) Selenium and/or compounds (as Se) 100 mg/1; and

(viii) Thallium and/or compounds (as Tl) 130 mg/1;

(C) Liquid hazardous waste having a pH less than or equal to two (2.0).

(D) Liquid hazardous wastes containing polychlorinated biphenyls at concentrations greater than or equal to 50 ppm.

(E) Hazardous wastes containing halogenated organic compounds in total concentration greater than or equal to 1,000 mg/kg.

Collectively, these hazardous wastes are referred to as the California list because the State of California developed regulations to restrict the land disposal of hazardous wastes containing these constituents, and Congress subsequently incorporated these prohibitions into the 1984 Amendments to RCRA. (RCRA sections 3004(d) (1) and (2), 42 U.S.C. 6924(d) (1), and (2)). Congress intended the California list prohibitions as a starting point in carrying out the congressional mandate to minimize land disposal of hazardous waste. Congress' intent in specifying threshold levels for the land disposal of California list wastes was to avoid time-consuming litigation over the selection of appropriate levels. However, section 3004(d)(2) of RCRA directs the Agency to substitute more stringent concentration levels where necessary to protect human health and the environment.

Restricted Metals

268.42 CONT'D

(b) Any person may submit an application to the Administrator demonstrating that an alternative treatment method can achieve a measure of performance equivalent to that achievable by methods specified in paragraphs (a), (c), and (d) of this section. The applicant must submit information demonstrating that his treatment method is in compliance with federal, state, and local requirements and is protective of human health and the environment. On the basis of such information and any other available information, the Administrator may approve the use of the alternative treatment method if he finds that the alternative treatment method provides a measure of performance equivalent to that achieved by methods specified in paragraphs (a), (c), and (d) of this section. Any approval must be stated in writing and may contain such provisions and conditions as the Administrator deems appropriate. The person to whom such approval is issued must comply with all limitations contained in such a determination.

(c) As an alternative to the otherwise applicable subpart D treatment standards, lab packs are eligible for land disposal provided the following requirements are met:

(1) The lab packs comply with the applicable provisions of 40 CFR 264.316 and 40 CFR 265.316;

(2) All hazardous wastes contained in such lab packs are specified in appendix IV or appendix V to part 268;

(3) The lab packs are incinerated in accordance with the requirements of 40 CFR part 264, subpart O or 40 CFR part 265, subpart O; and

(4) Any incinerator residues from lab packs containing D004, D005, D006, D007, D008, D010, and D011 are treated in compliance with the applicable treatment standards specified for such wastes in subpart D of this part.

(d) Radioactive hazardous mixed wastes with treatment standards specified in Table 3 of this section are not subject to any treatment standards specified in § 268.41, § 268.43, or Table 2 of this section. Radioactive hazardous mixed wastes not subject to treatment standards in Table 3 of this section remain subject to all applicable treatment standards specified in 268.41, 268.43, or TABLE 2.

introductory text to paragraph (c) is revised; and paragraphs (c)(3) and (c)(4) are removed, to read as follows:

§ 268.7 Waste analysis and recordkeeping.

(a) * * *

(1) * * *

(ii) The corresponding treatment standards for wastes F001–F005, F039, and wastes prohibited pursuant to § 268.32 or RCRA Section 3004(d). Treatment standards for all other restricted wastes may be referenced by including on the notification the subcategory of the waste, the treatability group(s) of the waste(s), and the CFR section(s) and paragraphs where the treatment standards appear. Where the applicable treatment standards are expressed as specified technologies in § 268.42, the applicable five-letter treatment code found in Table 1 of § 268.42 (*e.g.*, INCIN, WETOX) also must be listed on the notification.

* * * * *

(2) * * *

(i) * * *

(B) The corresponding treatment standards for wastes F001–F005, F039, and wastes prohibited pursuant to § 268.32 or RCRA Section 3004(d). Treatment standards for all other restricted wastes may be referenced by including on the notification the subcategory of the waste, the treatability group(s) of the waste(s), and the CFR section(s) and paragraphs where the treatment standards appear. Where the applicable treatment standards are expressed as specified technologies in § 268.42, the applicable five-letter treatment code found in Table 1 § 268.42 (*e.g.*, INCIN, WETOX) also must be listed on the notification.

* * * * *

(3) * * *

(ii) The corresponding treatment standards for wastes F001–F005, F039, and wastes prohibited pursuant to § 268.32 or RCRA section 3004(d). Treatment standards for all other restricted wastes may be referenced by including on the notification the subcategory of the waste, the treatability group(s) of the waste(s), and the CFR section(s) and paragraphs where the treatment standards appear. Where the applicable treatment standards are expressed as specified technologies in § 268.42, the applicable five-letter treatment code found in Table 1 of § 268.42 (*e.g.*, INCIN, WETOX) also must be listed on the notification.

(4) If a generator is managing a prohibited waste in tanks or containers regulated under 40 CFR 262.34, and is treating such waste in such tanks or containers to meet applicable treatment standards under Subpart D of this part, the generator must develop and follow a written waste analysis plan which describes the procedures the generator will carry out to comply with the treatment standards. The plan must be kept on site in the generator's records, and the following requirements must be met:

(i) The waste analysis plan must be based on a detailed chemical and physical analysis of a representative sample of the prohibited waste(s) being treated, and contain all information necessary to treat the waste(s) in accordance with the requirements of this Part, including the selected testing frequency.

(ii) Such plan must be filed with the EPA Regional Administrator (or his designated representative) or State authorized to implement Part 268 requirements a minimum of 30 days prior to the treatment activity, with delivery verified.

(iii) Wastes shipped off-site pursuant to this paragraph must comply with the notification requirements of § 268.7(a)(2).

* * * * *

(7) If a generator is managing a lab pack that contains wastes identified in Appendix IV of this part and wishes to use the alternative treatment standard under § 268.42, with each shipment of waste the generator must submit a notice to the treatment facility in accordance with paragraph (a)(1) of this section. The generator must also comply with the requirements in paragraphs (a)(5) and (a)(6) of this section, and must submit the following certification, which must be signed by an authorized representative:

I certify under penalty of law that I personally have examined and am familiar with the waste and that the lab pack contains only the wastes specified in appendix IV to part 268 or solid wastes not subject to regulation under 40 CFR part 261. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment.

(8) If a generator is managing a lab pack that contains organic wastes specified in Appendix V of this Part and wishes to use the alternate treatment standards under § 268.42, with each shipment of waste the generator must submit a notice to the treatment facility in accordance with paragraph (a)(1) of this section. The generator also must comply with the requirements in paragraphs (a)(5) and (a)(6) of this section, and must submit the following certification which must be signed by an authorized representative:

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste and that the lab pack contains only organic waste specified in Appendix V to Part 268 or solid wastes not subject to regulation under 40 CFR Part 261. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine or imprisonment.

(9) Small quantity generators with tolling agreements pursuant to 40 CFR 262.20(e) must comply with the applicable notification and certification requirements of paragraph (a) of this section for the initial shipment of the waste subject to the agreement. Such generators must retain on-site a copy of the notification and certification, together with the tolling agreement, for at least three years after termination or expiration of the agreement. The three-year record retention period is automatically extended during the course of any unresolved enforcement action regarding the regulated activity or as requested by the Administrator.

(b) * * *

(4) * * *

(ii) The corresponding treatment standards for wastes F001–F005, F039, and wastes prohibited pursuant to § 268.32 or RCRA Section 3004(d). Treatment standards for all other restricted wastes may be referenced by including on the notification the subcategory of the waste, the treatability group(s) of the waste(s), and the CFR section(s) and paragraphs where the treatment standards appear. Where the applicable treatment standards are expressed as specified technologies in § 268.42, the applicable five-letter treatment code found in Table 1 of § 268.42 (*e.g.*, INCIN, WETOX) also must be listed on the notification.

(5) * * *

(i) * * *

I certify under penalty of law that I have personally examined and am familiar with the treatment technology and operation of the treatment process used to support this certification and that, based on my inquiry of those individuals immediately responsible for obtaining this information, I believe that the treatment process has been operated and maintained properly so as to comply with the performance levels specified in 40 CFR part 268, subpart D, and all applicable prohibitions set forth in 40 CFR 268.32 or RCRA section 3004(d) without impermissible dilution of the prohibited waste. I am aware that there are significant penalties for submitting a false certification, including the possibility of fine and imprisonment.

* * * * *

(iii) For wastes with treatment standards expressed as concentrations in the waste pursuant to § 268.43, if compliance with the treatment standards in subpart D of this part is

Appendix IV—Organometallic Lab Packs

Hazardous waste with the following EPA waste codes may be placed in an "organometallic" or "Appendix IV lab pack:"

P001, P002, P003, P004, P005, P006, P007, P008, P009, P013, P014, P015, P016, P017, P018, P020, P022, P023, P024, P025, P026, P027, P028, P031, P034, P036, P037, P038, P039, P040, P041, P042, P043, P044, P045, P047, P048, P049, P050, P051, P054, P056, P057, P058, P059, P060, P062, P063, P064, P065, P066, P067, P068, P069, P070, P071, P072, P073, P074, P075, P077, P081, P082, P084, P085, P087, P088, P089, P092, P093, P094, P095, P096, P097, P098, P099, P101, P102, P103, P104, P105, P108, P109, P110, P112, P113, P114, P115, P116, P118, P119, P120, P122, P123

U001, U002, U003, U004, U005, U006, U007, U008, U009, U010, U011, U012, U014, U015, U016, U017, U018, U019, U020, U021, U022, U023, U024, U025, U026, U027, U028, U029, U030, U031, U032, U033, U034, U035, U036, U037, U038, U039, U041, U042, U043, U044, U045, U046, U047, U048, U049, U050, U051, U052, U053, U055, U056, U057, U058, U059, U060, U061, U062, U063, U064, U066, U067, U068, U069, U070, U071, U072, U073, U074, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U085, U086, U087, U088, U089, U090, U091, U092, U093, U094, U095, U096, U097, U098, U099, U101, U102, U103, U105, U106, U107, U108, U109, U110, U111, U112, U113, U114, U115, U116, U117, U118, U119, U120, U121, U122, U123, U124, U125, U126, U127, U128, U129, U130, U131, U132, U133, U134, U135, U136, U137, U136, U137, U138, U139, U140, U141, U142, U143, U144, U145, U146, U147, U148, U149, U150, U152, U154, U153, U154, U155, U156, U157, U158, U159, U160, U161, U162, U164, U165, U166, U167, U168 U169, U170, U171, U172, U173, U174, U176, U177, U178, U179, U180, U181, U182, U183, U184, U185, U186 U187, U188, U189, U190, U191, U192, U193, U194, U196, U197, U200, U201, U202, U203, U204, U205, U206, U207, U208, U209, U210, U211, U213, U214, U215, U216, U217, U218, U219, U220, U221, U222, U223, U225, U226, U227, U228, U234, U235, U236, U237, U238, U239, U240, U243, U244, U246, U247, U248, U249, U328, U353, U359

F001, F002, F003, F004, F005, F006, F010, F020, F021, F023, F024, F026, F027, F028

K001, K002, K008, K009, K010, K011, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K028, K029, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040, K041, K042, K043, K044, K045, K046, K047, K048, K049, K050, K051, K052, K054, K060, K061, K064, K065, K066, K069, K071, K073, K083, K084, K085, K086, K087, K093, K094, K095, K096, K097, K098, K099, K101, K102, K103, K104, K105, K111, K112, K113, K114, K115, K116, K117, K118, K123, K124, K125, K126, K136

D001, D002, D003, D004, D005, D006, D007, D008, D010, D011, D012, D013, D014, D015, D016, D017

U032, U136, U144, U145, U146, U163, U214, U215, U216, U217

14. Appendix V is added to part 268 to read as follows:

Appendix V—Organic Lab Packs

Hazardous wastes with the following EPA Hazardous Waste Code No. may be placed in an "organic" or "Appendix V:"

P001, P002, P003, P004, P005, P006, P007, P008, P009, P013, P014, P015, P016, P017, P018, P020, P022, P023, P025, P024, P026, P027, P028, P031, P034, P036, P037, P038, P039, P040, P041, P042, P043, P044, P045, P046, P047, P048, P049, P050, P051, P054, P057, P058, P059, P060, P062, P063, P064, P064, P065, P066, P067, P068, P069, P070, P071, P072, P073, P074, P075, P077, P081, P082, P084, P085, P087, P088, P089, P092, P093, P094, P095, P096, P097, P098, P099, P101, P102, P103, P104, P105, P108, P109, P110, P111, P112, P113, P114, P115, P116, P118, P119, P120, P122, P123

U001, U002, U003, U004, U005, U006, U007, U008, U009, U010, U011, U012, U014, U015, U016, U017, U018, U019, U020, U021, U022, U023, U024, U025, U026, U027, U028, U029, U030, U031, U033, U034, U035, U036, U037, U038,

U039, U041, U042, U043, U044, U045, U046, U047, U048, U049, U050, U051, U052, U053, U055, U056, U057, U058, U059, U060, U061, U062, U063, U064, U066, U067, U068, U069, U070, U071, U072, U073, U074, U075, U076, U077, U078, U079, U080, U081, U082, U083, U084, U085, U086, U087, U088, U089, U090, U091, U092, U093, U094, U095, U096, U097, U098, U099, U101, U102, U103, U105, U106, U107, U108, U109, U110, U111, U112, U113, U114, U115, U116, U117, U118, U119, U120, U121, U122, U123, U124, U125, U126, U127, U128, U129, U130, U131, U132, U133, U135, U137, U138, U139, U140, U141, U142, U143, U147, U148, U149, U150, U153, U154, U155, U156, U157, U158, U159, U160, U161, U162, U163, U164, U165, U166, U167, U168 U169, U170, U171, U172, U173, U174, U176, U177, U178, U179, U180, U181, U182, U183, U184, U185, U186 U187, U188, U189, U190, U191, U192, U193, U194, U196, U197, U200, U201, U202, U203, U205, U206, U207, U208, U209, U210, U211, U213, U214, U218, U219, U220, U221, U222, U223, U225, U226, U227, U228, U234, U235, U236, U237, U238, U239, U240, U243, U244, U246, U247, U248, U249, U328, U353, U359

F001, F002, F003, F004, F005, F010, F020, F021, F023, F024, F026, F027, F028

K001, K009, K010, K011, K013, K014, K015, K016, K017, K018, K019, K020, K021, K022, K023, K024, K025, K026, K027, K029, K030, K031, K032, K033, K034, K035, K036, K037, K038, K039, K040, K041, K042, K043, K044, K045, K046, K047, K048, K049, K050, K051, K052, K054, K060, K065, K073, K083, K084, K085, K086, K087, K093, K094, K095, K096, K097, K098, K099, K101, K102, K103, K104, K105, K111, K112, K113, K114, K115, K116, K117, K118, K123, K124, K125, K126, K136

D001, D012, D013, D014, D015, D016, D017

§ 173.4 Exceptions for small quantities.

(a) Small quantities of Flammable liquids, Flammable solids, Oxidizers, Organic peroxides, Corrosive materials, Poison B, and ORM A, B, C, and Radioactive materials that also meet the definition of one or more of these hazard classes are not subject to any other requirements of this subchapter if:

(1) The maximum quantity of material per inner receptacle is limited to:

(i) Thirty (30) milliliters for authorized liquids, other than poisons;

(ii) Thirty (30) grams for authorized solids, other than poisons;

(iii) One (1) gram for authorized materials classed as Poison B or subject to the "Poison-Inhalation Hazard" shipping paper description requirements of §172.203(k)(4); and

(iv) An activity level not exceeding that specified in §§ 173.421, 173.422, or 173.424, as appropriate, for a package containing a radioactive material;

(2) With the exception of temperature sensing devices, each inner receptacle:

(i) Is not liquid-full at 130°F, and

(ii) Is constructed of plastic having a minimum thickness of no less than 0.008-inch (0.2 millimeters), or earthenware, glass, or metal;

(3) Each inner receptacle with a removable closure has its closure held securely in place with wire, tape, or another positive means;

(4) Unless equivalent cushioning and absorbent material surrounds the inside packaging, each inner receptacle is securely packed in an inside packaging with cushioning and absorbent material that:

(i) Will not react chemically with the material, and

(ii) Is capable of absorbing the entire content (if a liquid) of the receptacle;

(5) The inside packaging is securely packed in a strong outside packaging;

(6) The completed package, as demonstrated by prototype testing, is capable of sustaining:

(i) Each of the following free drops made from a height of 6-feet direct onto a solid unyielding surface without breakage or leakage from any inner receptacle and without a substantial reduction in the effectiveness of the package:

(A) One drop flat on bottom;

(B) One drop flat on top;

(C) One drop flat on the long side;

(D) One drop flat on the short side; and

(E) One drop on a corner at the junction of three intersecting edges; and

(ii) A compressive load in pounds determined by multiplying by two the maximum horizontal cross section of the package (in square inches) in the position in which it would normally be transported without a substantial reduction in effectiveness; the load shall be applied continuously during a period of 24 hours, uniformly against the top and bottom of the package which is in the position in which it is intended to be normally transported.

NOTE: Each of the above tests may be performed on a different, but identical, package i.e., all tests need not be performed on the same package.

(7) Placement of the material, or packing it with different materials, in the package does not result in a violation of § 173.21;

(8) The gross weight of the completed package does not exceed 65 pounds;

(9) The shipper certifies conformance with this section by marking the outside of the package with the statement: "This package conforms to conditions and limitations specified in 49 CFR 173.4";

(10) The package is not opened or otherwise altered until it is no longer in commerce; and

(11) The package, unless approved by the Director, OHMT, does not contain a material assigned any of the following identification numbers associated with the hazardous materials description in § 172.101 or § 172.102 of this subchapter:

1092	1831
1131	1873
1259	2031
1380	2032
1397	2495
1419	2626
1422	2813
1432	2845
1433	2924
1491	2925
1504	9191
1749	9193
1798	

(b) A package containing a radioactive material also must conform with the requirements of § 173.421(a) through (e) or § 173.422(a) through (f). After May 2, 1989, a package containing a radioactive material may not be offered for transportation aboard a passenger-carrying aircraft unless that material is intended for use in, or incident to, research, medical diagnosis or treatment.