Boise State University

Hazardous Waste Management Manual

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INTRODUCTION

Purpose and Scope

The purpose of this manual is to provide important hazardous waste information for Boise State University (BSU). Proper hazardous waste management is important in order to provide healthy and safe working conditions for faculty, staff, and students, to protect the environment, and to ensure compliance with applicable federal, state, and local laws and regulations. If there are situations that this manual does NOT address, or if there are questions regarding the procedures it contains, contact the BSU Environmental Health and Safety (EHS) Office.

This manual is applicable to the generation, minimization, storage, recycling and disposal of hazardous waste only. Nevertheless, many of the safe work practices and information identified in this manual for the handling of hazardous waste are applicable to hazardous materials in general. This manual was prepared for use within BSU. It is intended for use by, and applies to, BSU employees, staff, visitors, and students. If this manual or any portion of it is used elsewhere, neither its authors nor the University accept responsibility for its contents.

Environmental Laws and Regulations

In 1976, Congress enacted the Resource Conservation and Recovery Act (RCRA) to protect human health and the environment from improper hazardous waste management practices. BSU falls under RCRA and other environmental laws and regulations, including the Toxic Substances Control Act (TSCA), Superfund Amendments and Reauthorization Act (SARA), Clean Water Act (CWA), Clean Air Act (CAA), Emergency Planning and Community Right-to-Know Act (EPCRA), and Idaho General Safety and Health Standards. Thus, it is very important to not discard as ordinary trash any reagents, chemical solutions, chemical mixtures, industrial products, infectious wastes, contaminated rags, or any items containing or contaminated with substances which may be regulated under one or more of these programs.

It is the responsibility of University personnel to follow the procedures in this manual. The University is subject to state and/or federal inspection at any time. The University and individuals can be cited for failure to comply with hazardous waste regulations. Conviction can result in civil or criminal penalties, depending upon the seriousness of the violation.

Waste Generator Status

RCRA regulations exempt two categories of small quantity generators from some of the hazardous waste regulations, primarily those concerning record-keeping and reporting. These are the Conditionally Exempt Small Quantity Generator (CESQG) and the Small Quantity Generator (SQG). Under RCRA, a small quantity generator is defined as an entity which produces less than 1,000 kilograms but more than 100 kilograms per month of hazardous waste and/or less than 1 kilogram per month of acute hazardous waste. A CESQG is an entity which produces less than 100 kilograms per month of hazardous waste and/or less than 1 kilogram per month of acute hazardous waste. Acute hazardous waste is identified in RCRA regulations with a “P” prefix. These wastes are listed in Appendix B.

RCRA requires each waste generator to obtain an Environmental Protection Agency (EPA) identification number for its activities that occur within a contiguous area.

Small Quantity Generator Status

It is very important for the main BSU campus to retain its SQG status. There are significantly increased administrative reporting requirements which are applicable to large quantity generators (LQGs) that the University would like to avoid, as well as higher disposal costs associated with larger volumes and more

frequent disposal of hazardous wastes.

It is unlikely BSU will exceed the 1,000 kg/month quantity of hazardous waste generation given current levels of generation. However, there are a number of both research related and industrial chemicals present, or capable of being prepared, which are listed as acute hazardous, or "RCRA P-listed," once they have been declared as waste. If Boise State University were to exceed the generation of 1 kg/month for these wastes, a status of LQG would have to be established. A list of these acute hazardous materials, or RCRA P-listed is in Appendix B of this manual. Please do NOT generate a RCRA P-listed waste without FIRST contacting the EHS. Other researchers on the campus may also be generating RCRA P-listed waste, and the combined total could potentially exceed the 1 kg/month threshold. EHS staff can answer questions concerning P-listed wastes.

Careful management of all hazardous materials from purchase to disposal will ensure that BSU does not lose its SQG status, and keeps hazardous waste disposal costs to a minimum. Please buy and use only the smallest quantity of any hazardous material which is necessary. In most cases, it is far more expensive to dispose of hazardous material as waste than it is to purchase it as new material.

Conditionally Exempt Small Quantity Generator Status

It is equally important that BSU does not lose its CESQG status for its remaining locations. A CESQG must not generate more that 100 kg/month of hazardous waste or more than 1 kg/month of acutely hazardous waste (RCRA P-listed). The BSU CESQG locations in Canyon County generate primarily recyclable wastes in the form of spent cleaning solvents and used oil. Reporting is still required by the State of Idaho for these locations, as well as the possibility of EPCRA and SARA reporting, depending upon quantities.

PROGRAM OVERVIEW

Depending on their specific characteristics, hazardous wastes generated at BSU are either recycled, disposed of through a hazardous waste broker, or treated on site. Treatment on site is limited to neutralization of certain acids and bases by their generator and solidification of certain types of water based latex paint. These three groups all have different requirements for packing, labeling, and handling. Unregulated, non-hazardous wastes are either recycled or disposed of as ordinary trash.

Programs Goals

The BSU Hazardous Waste Management Program is designed to achieve three major objectives for BSU:

- protection of human health, safety, and the environment;
- sound management of hazardous waste on the BSU campus, including waste minimization; and
- compliance with applicable laws and regulations.

Protection of Human Health

Health and safety information on specific waste streams can be obtained from many sources. Material Safety Data Sheets (MSDSs) provided by the manufacturer and MSDS sites on the internet are the most common places to start. If an MSDS cannot be located, contact the EHS office for assistance. EHS also has other resources for health and safety information about hazardous waste that are available upon request. Proper identification, labeling, and characterization of a waste protects the health and safety of all those who come in contact with it through normal procedures, inspections, or emergency response. Proper training of individuals who handle hazardous materials and hazardous waste is also vital for meeting this objective. Hazardous waste training from EHS is available to all campus personnel upon request.

Reduction of Hazardous Waste on BSU Campuses

The quantity of hazardous waste generated at BSU can be reduced significantly by:

- substituting non-hazardous material for hazardous material whenever possible;
- recycling unused material between teaching and research laboratories and between departments;
- defining and performing waste reduction chemistry as part of the process being used in the laboratories;
- monitoring of departmental purchases to identify and minimize the quantities of those materials that may become chemical hazardous waste;
- not accepting donated or "free" materials;
- proper classification and labeling of wastes and separation into appropriate waste categories for disposal.

Compliance With Laws and Regulations

The policy of BSU is to comply fully with Federal, State, and local regulations regarding the accumulation, storage, identification, recycling, packaging, shipment, and disposal of hazardous wastes. Since many agencies may be involved with a specific waste type and its use, it is important to have a good understanding of these laws and regulations to meet the objectives stated above. If you are uncertain about what these rules are, or how they apply to you, contact the EHS office for assistance.

Waste Management References

There are hundreds of thousands of specific materials and millions of mixtures. Many of these materials do not possess hazardous properties; a small number, however, can be extremely harmful to human health and the environment, and must be respected. Information is available on these hazardous materials, either in printed form or on electronic media. Material Safety Data Sheets are required to be supplied by the chemical manufacturer and it is highly recommended that these sheets remain, in an organized fashion, with the chemical or in an easily accessible location nearby. Assistance with hazardous material properties and the proper storage, handling, waste disposal, and regulatory requirements is available through EHS.

HEALTH AND SAFETY

Boise State University seeks to ensure the health and safety of all people who are a part of the University environment. These include faculty, staff, students, contractors, volunteers, and visitors. The policies and procedures in this manual were developed to meet that objective, insofar as hazardous waste is concerned.

Training Requirements and Responsibilities

There are specific training requirements for individuals who work with hazardous waste. These requirements are found in federal code and specify minimum training levels. For this reason, personnel who are designated as departmental material handlers, laboratory supervisors, SAA coordinators, SAA managers, and waste generators must be properly trained to work with hazardous waste (see Chapter 6 for a discussion of SAA coordinators, SAA managers, and waste generators). Special hazardous waste training may be requested for TAs, RAs, GAs, and other students in laboratories.

Custodial Employees

Custodial employees must be considered when disposing of non-hazardous and hazardous solid waste. These personnel must not encounter hazardous waste when maintaining floors, sinks, counter or bench tops, closets, or trash receptacles. All sharp items, such as broken glassware and pipette tips, need to be placed in an appropriately labeled container and not in the normal trash receptacles. It is also a good

practice to place non-hazardous powders in a sealed container or bag before throwing them into normal trash.

Maintenance and Operations Employees

These employees frequently come into contact with potentially hazardous materials and hazardous wastes. Examples include pesticides, cleaning agents, oil-based paints and stains, PCB oils, cylindered gases, automotive fluids, and shipments of incoming chemicals. Some of these generate hazardous waste after usage. If you work with any of these materials or mixtures and would like more detailed information concerning risks and precautions recommended for safe handling and disposal, obtain Material Safety Data Sheets (MSDSs) or talk to a materials handler or EHS.

Hazard Communications

It is important that each person who uses or is exposed to hazardous materials at the University has information available that will let them know the risks associated with exposure to the hazardous material. The use of MSDSs, reference texts, safety training, work demonstrations, videos, and medical monitoring can be beneficial for individuals who are potentially exposed to hazardous material and hazardous waste. Hazard communication is the responsibility of the department heads, principal investigators, laboratory supervisors, or safety officers.

The EHS office would like to emphasize the importance of reading, understanding, and keeping all MSDSs that come with chemicals. MSDSs contain important information such as the hazards of the chemical, physical characteristics of the chemical, storage and handling instructions, and protective clothing and equipment that should be used for safe work. EHS can provide assistance with reading and applying information found in the MSDSs upon request. MSDSs may be downloaded from several places on the internet. Electronic copies should not replace the original copies as characteristics of chemicals could change during production and may vary with manufacturers. MSDSs are also important means of characterizing a waste as hazardous or not.

Standard operating procedures (SOPs) are required by the Chemical Hygiene Plan (CHP). SOPs are extremely useful training tools since they provide the user with a step-by-step guide to hazardous processes and to a list of all chemicals involved in those processes. The SOP should also contain steps such as engineering controls and PPE to help mitigate the hazards presented by the hazardous materials involved in a process.

Chemical labeling is another important element of hazard communication. Improper labeling may lead to serious injuries. A good chemical label will include at least the following information: chemical identity written in English (not a chemical formula), expiration date of the chemical, physical hazards (such as fire or unusual reactivity), and any other physical characteristic of importance (such as odor). These are just a few of several good labeling practices. When an unlabeled chemical becomes a waste, it is very expensive to test the chemical for hazardous characteristics. A few minutes with a permanent marker could save the University hundreds of dollars in analysis fees.

Personal Protection Equipment (PPE)

Whenever hazardous materials, including hazardous wastes, are used or handled on campus, use of proper personal protection equipment should be considered to protect all potentially exposed personnel. The degree of PPE used should be commensurate with the hazard potential. PPE includes, but is not limited to, safety glasses, chemical gloves, face shields, aprons, lab coats designed to offer splash protection, fume hoods, and filtering face masks. It is advisable to train personnel in the use of PPE prior to initiation of activities involving any hazardous material, and to repeat the training whenever a significant change in use occurs. Consult EHS personnel for assistance involving PPE. PPE that has been contaminated by a hazardous material needs to be characterized as to whether or not it becomes a hazardous waste.

University Emergency and Disaster Response

EHS personnel can respond to a variety of incidents which involve hazardous materials and hazardous waste. Know how to activate emergency responders and what procedures to follow in an emergency BEFORE an actual emergency occurs. Emergency telephone numbers and contact lists are posted in each lab for use in the event of a hazardous material spill, fire, or other emergency. In the event that someone is hurt, immediately dial 911 and be sure to tell the dispatcher that hazardous materials may have been involved. In the event of the loss of communications on campus, the EHS office is located at 1607 University Drive.

WHEN IS A WASTE HAZARDOUS?

There are numerous, and sometimes conflicting, regulatory definitions for hazardous material and hazardous waste. Not all waste is regulated as hazardous waste under RCRA, but many materials are regulated under separate programs at different concentrations. A waste generated at BSU is considered to be hazardous if any of the following apply:

Characteristic of Ignitability, Corrosivity, or Reactivity

Definitions for each characteristic are found in Appendix A. These waste streams must be stored in separate SAAs or segregated within a single SAA, even if they are generated in the same room. Consult with EHS personnel if you have questions concerning these characteristics or their application to a specific waste.

EPA Listing of Hazardous Waste

The EPA has established lists of materials that must be handled and disposed of as hazardous when they become wastes. The listed wastes most frequently generated at BSU include the D-list (Appendix A), U-list (Appendix F), and P-list (Appendix B). The materials on these lists are subject to change, as are their regulatory levels.

Special attention should be given to materials found on these lists which are being used or purchased. These materials must be handled by the procedures in this manual if and when they become waste. Do not buy more material than is absolutely needed and will be consumed. The cost to dispose of a hazardous waste is usually many times the initial cost to obtain the material.

Mixtures of Listed and Unlisted Wastes

In many instances, an EPA-listed waste is found mixed with either an unlisted waste or another non-hazardous material. The "mixture" and "derived-from" rules under RCRA were designed to prevent using dilution of a listed hazardous waste as a treatment method. This means that even small concentrations of many hazardous wastes must be considered as regulated and disposed of properly. Do NOT mix a hazardous waste with a non-hazardous waste!

Wastes with New or Unique Characteristics

These wastes may be created in research or teaching labs, and must be evaluated to determine whether they meet any of the EPA definitions of hazardous waste. Characterization of new materials is the responsibility of the person creating the material. Contact EHS for assistance on this matter.

Types of Hazardous Waste

There are many kinds of hazardous wastes possible, and it is beyond the scope of this manual to list

them all. However, a brief overview of the regulated waste categories most often encountered at BSU includes:

- D-listed characteristic wastes and specific waste (found in Appendix A);
- P-listed acute hazardous wastes (found in Appendix B);
- U-listed specific wastes (found in Appendix C);
- asbestos and asbestos-containing materials;
- polychlorinated biphenyls (PCBs);
- batteries (lead-acid, mercury, lithium, Ni-Cd);
- photographic solutions;
- oils and solvents;
- copier chemicals and supplies;
- fluorescent, sodium and mercury vapor lamps;
- suspected carcinogens, mutagens, or teratogens;
- certain kinds of scintillation fluids;
- solvent contaminated rags;
- oil or lead based paints; and
- certain cleaning chemicals.

Within these categories, subgroups are also possible. It is a good idea to check with EHS for information relating to proper disposal of wastes if you suspect they are within one or more of these categories.

Sources of Information Regarding Hazardous Waste

At Boise State University, there are several sources of information regarding the hazards associated with hazardous waste. Aside from formal training and web-based training, which are available through the Environmental Health and Safety Office, a variety of books, manuals, videos, network and internet contacts, and vendor-supplied information can be accessed or made available. Department materials handlers may also be able to answer questions.

Other Types of Wastes

There are several types of waste generated at BSU which are not covered by this manual. These include:

- Non-hazardous solid wastes. Examples include garbage, rubbish, paper or cardboard refuse, latex (water-based) paints and stains, and non-contaminated glassware.
- Radioactive waste. Examples include scintillation vials containing radioactive material, and other radioactive wastes that do not also have characteristic or specific hazardous waste properties. The “Radioactive Materials Management Manual” is available upon request. You may contact EHS with questions concerning radioactive waste.
- Mixtures of radioactive and hazardous wastes (mixed wastes). This special class of waste represents a problem for all waste generators, because disposal options are extremely limited and are always very expensive. BSU has no storage capability for such waste. **DO NOT GENERATE ANY MIXED WASTE.**

If you are unsure of what type of waste you are generating, or how to dispose of it, please contact EHS for further waste stream characterization.

SPECIFIC HAZARDOUS WASTE SOURCES

Any material which is to be discarded, abandoned, or accumulated prior to recycling is considered a waste. Some major categories of hazardous materials and potentially hazardous wastes are provided

below, including examples. If you are uncertain about a particular waste, please contact EHS.

Because it is impossible to provide a complete classification of all possible hazardous waste in this manual, please contact EHS before discarding any chemical or other potentially hazardous waste that you generate. Waste will not be transported by EHS staff unless it is in a container that complies with all regulations. A discussion of proper containers can be found in Section 6.3.1 of this manual.

Unknowns

One of the most expensive and time-consuming group of potentially hazardous waste is the "unknown." If no identity can be assigned to a material, or it cannot be determined by process knowledge, the unknown must be subjected to analytical procedures that can cost BSU many hundreds of dollars and take several weeks to complete. The cost for these analyses is generally borne by the EHS, unless abuse of this service is detected. Most unknowns can be avoided by using standard laboratory protocol:

- Label each container as to its contents, date received or prepared, and concentration.
- Obtain MSDSs from the manufacturer and have them on hand. MSDSs should accompany all chemical deliveries. Any MSDSs sent to EHS by the manufacturer will be routed to the department that bought the materials.

Unknowns should NOT be placed in an SAA until an analysis of the unknown has been completed. Exposure of certain material to temperature and moisture extremes can create dangers of fire, explosion, or container rupture and subsequent expensive cleanup activities and potential for environmental contamination.

Abandoned Material

Material that has been abandoned, or for which ownership cannot be identified, may be hazardous waste. If the identity of the material is not known, it is treated as an unknown (Section 5.1). If the identity of the abandoned material is known, notify EHS for characterization and pick-up. Abandoned material that is deemed hazardous must be stored properly upon discovery.

Questionable Purity

Material with questionable purity cannot be expected to be used in either a teaching or research capacity. While some of these materials may be hazardous waste once they are characterized, others often are not, but still must be disposed of properly. EHS will assist individuals with this task to ensure safe and environmentally sound disposal practices.

Expiration Date Surpassed

Some materials have specified expiration dates which must be observed for a variety of valid reasons, which include purity, safety, and regulatory concerns. For example, peroxide forming chemicals, some of which are listed in Appendix D, have expiration dates which should not be exceeded under any circumstances. In addition, manufacturers often supply expiration dates on labels of materials that are related to potency or even composition changes that occur with time, temperature, or other storage conditions. These dates should always be observed, and if they are exceeded, the material is to be considered a waste and characterized to see if it meets hazardous characteristics.

Materials from Discontinued or Completed Activities

When materials are no longer useful, they may be considered hazardous waste. However, another possibility is to recycle them by department transfer. Each Department Material Manager or laboratory supervisor should attempt to determine whether a material they need is available elsewhere on campus before buying more from an outside vendor. This will help reduce the financial burden on both initial cost

and ultimate disposal cost when it is eventually declared as a hazardous waste. Some examples of these kinds of activities include:

- A principal investigator or researcher leaves the University.
- Lab work on specific projects is completed.
- The responsibility for a lab or work area changes.

It is very important to clean chemicals out of a laboratory BEFORE a principal investigator or researcher leaves the University. Unknown or questionable chemicals left in laboratories are very expensive to test. Please consult with EHS personnel concerning the fate of these materials and the procedures to be followed to ensure proper closure of a laboratory or program within a lab.

Excess Stock

Excess stock with no likelihood of use either by their current owners, the department, or others elsewhere on campus, is considered waste. Careful planning when purchasing materials can reduce the volume of excess material that must ultimately be managed as hazardous waste. Some helpful ways to accomplish this goal are presented in Section 9, entitled "Hazardous Waste Minimization Programs".

Spent Cleaning and Wash Solvents

Spent cleaning and wash solvents are almost always considered hazardous waste, because either the solvent itself or the materials which contaminate the solvent are considered hazardous. There are options as to the types of solvents and processes used which may not be regulated as hazardous waste. Other generators of spent solvents should contact EHS for waste solvent management options. Rags used in these processes also become a hazardous waste when using a hazardous solvent. These rags must be stored in a closed and labeled container. Laundering of these rags may not be an acceptable alternative. EHS can help identify whether or not these rags can be laundered for reuse.

Waste Paints and Stains

Waste paints and stains which contain hazardous metals in the specific D-list on Appendix A or hazardous solvents which may be flammable, must be considered hazardous waste. Old paint cans meeting these characteristics which have hardened contents must also be presented for proper disposal. Most water-based latex paints currently are not considered to be hazardous, but may not be acceptable to a municipal solid waste landfill. Currently, EHS solidifies latex paint before arranging for disposal at the landfill. Spray paints may also meet the hazardous criteria. Please consult EHS for proper disposal information.

Motor Oil and Filters

Regulation on used motor oil and filters are subject to change. Currently, oil is recycled, but properly drained filters are disposed of as ordinary trash. The State of Idaho regulates these items. If you have questions concerning either the regulatory status or recycling options, contact EHS. Oil must be recycled through a recycler that has obtained an EPA identification number. All oil must be drained from filters before the filter can be recycled or disposed of. Proper drainage procedures consist of punching a hole in the filter and letting it drain for 24 hours. All containers used to store used oil for any length of time must be marked with the words “USED OIL”.

Mercury and Mercury Compounds

Metallic mercury is commonly found in instrumentation such as thermostats, thermometers, and barometric pressure equipment. Bulk quantities of metallic mercury or mercury sulphide can usually be recycled. However, articles contaminated with mercury or its compounds must be disposed of as hazardous waste.

Cleanup of a mercury spill from a broken thermometer generates large quantities of mercury-contaminated waste that is very costly to dispose of. For the University, it is far less expensive to obtain an electronic or environmentally friendly thermometer than to pay disposal costs of a broken mercury thermometer. EHS recommends that you do not buy new mercury-containing equipment for use at BSU when good alternatives are available.

Mercury compounds are currently very expensive to dispose of and many are P-listed wastes. Every attempt to find alternatives to using mercury compounds should be made. The cost per gram of disposal is approximately 50 to 200 times the purchase cost. If you have mercury compounds to dispose of, consider sulphide precipitation as a final step in your process. Currently, mercury sulphide is the only mercury compound which is accepted for recycling.

Electrical Transformers

Older electrical transformers often contain PCB dielectric oils. In the past, great expense has been incurred in testing for and disposing of these fluids from equipment that has been donated to the University. DO NOT ACCEPT DONATED ELECTRICAL EQUIPMENT UNTIL IT HAS BEEN EVALUATED BY EHS PERSONNEL FOR HAZARDOUS MATERIALS! The cost to dispose of contaminated donated equipment is very high and can be avoided if equipment is properly evaluated prior to acceptance.

Fluorescent Light Ballasts

Fluorescent light ballasts are characterized by EHS as to whether they contain PCBs. This characterization is determined by the specific manufacturer and date of manufacture. Under the Toxic Substance Control Act (TSCA), the manufacturing of ballasts containing PCBs after 1979 is prohibited.

Today manufacturers of fluorescent light ballasts cannot legally produce PCB containing ballasts under TSCA. Ballasts which do not have PCB material can be recognized by the following:

- have the label "NO PCBS" or
- have a manufacturing date which is later than 1979 or
- are General Electric with a serial number starting with "8G" or ending in "W".

Donated or "Free" Hazardous Material

BSU has spent thousands of dollars on hazardous waste disposal of "free" hazardous material donated to the University. Do not accept any donated hazardous material from any outside source without first consulting with EHS.

Batteries

Spent or unwanted batteries may be classified as hazardous waste, mainly due to their toxicity characteristics (RCRA D-listed waste). Batteries are subject to the toxicity characteristic leachate procedure (TCLP) to determine whether or not they are hazardous waste. Because batteries are manufactured within specified tolerances, a representative sample may be used for a waste characterization for a given brand and type of battery.

Alkaline batteries can be placed in the trash for disposal in the landfill. Although alkaline batteries used to be taken for recycling, the Hazardous Materials Coordinator at the Ada County Landfill has indicated that the toxicity of the alkaline batteries is so low that there is no need to recycle them.

Spent lead-acid batteries, such as motor vehicle batteries, are not subject to federal hazardous waste regulations provided that they are reclaimed as described in 40 CFR 266.80. Contact EHS for disposal of Ni-Cad, lead-acid, sealed lead-acid, lithium and other batteries.

Non-hazardous waste batteries do not need to be accumulated in an SAA nor are they subject to storage time constraints associated with hazardous waste. However, batteries should be stored in a secondary container, such a polyethylene tub to prevent contamination to the environment and should not be accumulated. Contact EHS for transportation of these batteries to a recycling facility.

Batteries that are hazardous waste should have a label attached with the words "USED BATTERY" in the chemical description. Call EHS to pick up used hazardous waste battery. If the battery is leaking, it must be placed in a sealed container.

All rechargeable batteries are recycled. So all Ni-cad, lead acid, sealed lead acid, lithium and others Environmental Health & Safety recycles. We will pick the batteries up, so have people call me at 6-3999 or Wendy at 6-3303 for pickup.

Photographic and Radiographic Solutions

Spent material used in developing X-ray films and photographic negatives and prints contain silver compounds from dissolution of the emulsion on print paper. These silver compounds are regulated under both RCRA and the City of Boise NPDES pre-treatment standards, and must be recycled. For large generators, silver may be removed from waste streams at the point of generation and recycled. For smaller generators, the liquid wastes may be transported off site for recycling. Solutions containing spent silver that can be recycled should be labeled with the words "Used Fixer". Please contact EHS personnel for details.

Some photographic developing solutions may contain organic compounds that meet hazardous criteria. These solutions must be disposed of as hazardous waste and may not be able to be recycled.

5.16 Electrical Lamps

Some electrical lamps contain hazardous materials, such as mercury, and require proper management when no longer needed.

5.16.1 Sodium Vapor Lamps

Sodium vapor lamps contain metallic sodium, which represents a fire and explosion hazard when exposed to either moist air or water. These lamps should not be disposed of as normal trash, and must not be broken. Contact EHS personnel for assistance.

5.16.2 Mercury Vapor Lamps

Mercury vapor lamps contain small quantities of metallic mercury and/or mercury compounds that are considered hazardous waste under RCRA. These items must be collected for proper disposal. Contact EHS for collection and transportation of these vapor lamps.

5.16.3 Fluorescent Lamps

Fluorescent light tubes contain a small amount of mercury that requires them to be tested by the toxicity characteristic leachate procedure (TCLP) for hazardous waste determination. There is insignificant data yet as to whether or not fluorescent light tubes in general pass or fail the TCLP. However, fluorescent light tubes that fail the TCLP must be currently managed as a hazardous waste. Some GE fluorescent light tubes purchased under contract by BSU have been tested and found to pass the TCLP. Accordingly they are managed as ordinary trash. Call EHS if there are any questions concerning the treatment of a fluorescent light tube. In order to prevent breakage during handling, it is recommended that spent fluorescent light tubes be placed in original packaging material prior to disposal.

5.17 Contaminated Materials

Materials contaminated with a hazardous waste may also become a hazardous waste. Spill cleanup material, PPE, laboratory bench coverings, chemical storage cabinets, glassware, rags, etc., must all be evaluated before disposal into ordinary trash. Construction materials are often overlooked as being a hazardous waste. Any ductwork from fume hoods should be evaluated for hazardous materials before disposal.

RCRA HAZARDOUS WASTE MANAGEMENT

Proper hazardous waste management is a process that involves both personnel in the unit generating the waste and EHS personnel. It involves the identification and characterization of a waste stream, proper containment and storage of the waste in a designated Satellite Accumulation Area (SAA), inspection of the containers in an SAA and the SAA itself on a regular basis, and scheduling for removal of the waste streams from an SAA as required by regulation. Details of what an SAA is, how to create one, and procedures for waste removal from the BSU campus are given below.

This information on SAAs is designed for those who generate waste on a regular basis. Information is also presented on occasional or spot generation of hazardous waste for those who fall into that category. If you generate hazardous waste infrequently, have questions about whether you need to establish an SAA, or questions about your active SAA, call EHS for information and assistance.

Close coordination between the persons involved with an SAA and EHS personnel is vital for effective waste management, minimization, and disposal from waste generated at BSU. Your cooperation with all procedures is essential to the future of laboratory work and scientific research at BSU.

Satellite Accumulation Area (SAA) Definition

AN SAA is defined in 40 CFR 262.34, but is interpreted differently by each of the 10 EPA regions in the U.S. It allows for accumulation of up to 55 gallons of hazardous waste or 1 quart of acute hazardous waste (P-listed) "at or near any point of generation where wastes initially accumulate." EPA Region 10 defines this location as being within the room where a waste is first generated, and thus, it cannot pass through a doorway to a hall or be moved to another waste SAA, even though it may contain a compatible or identical waste stream. Thus, a separate SAA must be created for each laboratory or room where a waste stream is generated; more than one SAA may also be needed in the same room if incompatible waste streams which need to be separated for safe storage are generated in that room. It is important to not overlook laboratory complexes. A doorway is the boundary, even if the doorway leads to a smaller room in the complex and not a hallway. If you have any questions concerning the definition of an SAA or its characteristics, contact EHS.

The SAA should be labeled *Satellite Accumulation Area*. A sign, sticker or other label should be placed on the outside door of the SAA enclosure. It should be highly visible and provide notification to occupants of a room as well as for emergency responders that hazardous waste is stored within the enclosure.

SAA Creation

New SAAs can be created by contacting EHS. Do not start accumulating hazardous waste prior to contacting EHS and establishing a new SAA. EHS staff can assist in selecting an appropriate area in a laboratory, training staff who will use the SAA, and insuring that proper steps such as secondary containment and segregation of incompatible waste streams are taken. It is important for all SAAs to be formally included on the list of sites inspected by EHS so that monthly and annual inventories can be completed accurately.

Proper Containers

Hazardous wastes that are placed in an SAA must be in a proper container. A proper container is one that meets the following regulations:

40 CFR 264.171 Condition of containers.

If a container holding hazardous waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the owner or operator must transfer the hazardous waste from this container to a container that is in good condition or manage the waste in some other way that complies with the requirements of this part.

40 CFR 264.172 Compatibility of waste with containers.

The owner or operator must use a container made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.

40 CFR 264.173 Management of containers.

(A) A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste.

(B) A container holding hazardous waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.

In addition to the federal regulations, **BSU requires that no foodstuff containers be used to hold a hazardous waste**. This is a precautionary measure to prevent accidental ingestion or improper disposal.

Contact EHS for more information concerning proper containers or if you need help in locating a proper container. We recommend that whenever possible hazardous wastes be stored in the original hazardous chemical bottles and are appropriately labeled as waste with any added components also marked on the label.

SAA Management

Waste Generator

A person who is directly responsible for creating a hazardous waste is referred to as the Waste Generator. Generators are normally the laboratory workers, whether they are students, technicians, or faculty. They are to notify the laboratory supervisor and EHS of laboratory activity that may potentially generate a hazardous waste. They should be trained how to utilize the SAA and are responsible for handling their waste according to this manual and all training provided to them. Spot generation also occurs at this University. Spot generation refers to a one time or infrequent generation of hazardous waste. Any department on campus may have spot generation occurring. When spot generation occurs, EHS staff should be notified immediately.

Environmental Health and Safety Office

The Environmental Health and Safety Office has the sole responsibility for:

- final waste characterization
- hazardous waste removal
- hazardous waste transportation
- hazardous waste disposal
- placing the "Start Date" and "EPA #"on waste containers arriving in the central accumulation area
- monthly SAA inspections

During inspections EHS personnel will look for evidence of corrosion, incompatible waste, leaks or spills, uncapped containers, unsecured SAA areas, and any incomplete forms or labels. Any problems will be reported to the person responsible for the laboratory in which the SAA is located for possible corrective action.

Hazardous Waste Containment

BSU's hazardous waste containment policy includes, but is not limited to, the following:

- All hazardous waste must be properly stored in compatible containers that prevent rupture or leakage of the material contained.
- Containers should not be filled beyond the neck or should have at least one inch headroom to allow for expansion.
- Containers should be made of material that does not react with or absorb the contents and have a screw cap of similar material properties.
- The cap must be in "new" condition, with no cracks or any signs of deterioration. ALL WASTE CONTAINERS MUST BE SECURELY CAPPED DURING STORAGE, EXCEPT WHEN ADDING OR REMOVING WASTE.
- No foodstuff containers may be used to store hazardous waste even if they are compatible with the material. See Section 6.3.1 for an explanation of this policy.

Ideally, the original container should be used if it shows no signs of deterioration. However, some older original containers may not meet current standards, even if they are intact. The responsibility for transferring chemicals into proper containers belongs to SAA personnel.

It is the department's responsibility to supply hazardous waste containers. EHS will assist in locating empty containers whenever possible. Each SAA must have secondary containment such as a tub or drum that will contain at least the quantity of the largest container. Each SAA is allowed to contain several separate waste streams, as long as they are chemically compatible. If separate waste streams are not compatible, they are to be separated by a physical barrier to prevent interaction in the event of a leak or spill. A separate secondary containment unit may be all that is needed to prevent interaction of some chemicals.

Hazardous Waste Labels

Properly labeled waste containers are critical for managing hazardous waste in a manner that is safe and compliant with regulatory requirements. Each waste container must be labeled with the following:

- the words, "HAZARDOUS WASTE"
- the waste name, building and room number where the material was generated.
- the chemical constituents contained. A generic title may be used only if specific waste profiles have been established with EHS (i.e., in teaching labs or long term research projects).

SAA Monitoring / Waste Tracking

BSU currently tracks hazardous waste using a Microsoft Excel spreadsheet.

Procedures for Satellite Accumulation Areas

The following procedures assume that the identity of a waste stream is known. For unknowns, please contact EHS personnel.

- When a new waste stream is identified, the person responsible for the SAA should characterize the waste using either technical data or process knowledge; this may require assistance from the waste generator or EHS.

- Contact EHS to arrange for creation of a new SAA if necessary. No waste may be placed in the SAA until notification is received from EHS that the SAA is ready for waste storage.
- Proper containers must be used for waste and a "Hazardous Waste" label with the required information must be placed on each hazardous waste container
- EHS staff will monitor the SAA monthly and will remove any waste bottles that are full or which are labeled: "Remove."
- The hazardous waste is then transported by EHS personnel, as soon as reasonably achievable, to the Central Accumulation Area. This transportation is only done by EHS personnel and only while using BSU-owned vehicles. Once a waste container arrives at the Central Accumulation Area, the individual containers are segregated according to their chemical compatibility and hazard class.

Spot or Occasional Hazardous Waste Generation

Some hazardous waste generation occurs as a result of infrequent or one-time activities that do not warrant the creation of an SAA. Many of the responsibilities and activities listed in section 2.4.3 through 2.4.5 are still required of spot or occasional generators. EHS personnel should be contacted for assistance whenever a potentially hazardous waste is identified.

Hazardous Waste Treatability Studies

Laboratory research using samples of actual hazardous waste to investigate the efficiency of treatment or recycling are termed Treatability Studies. Researchers may use a limited amount of hazardous waste as a sample in a treatability study. These samples are exempted from the general hazardous waste regulations but are subjected to the treatability study regulations in 40 CFR 261.4 (e) and (f). If samples contain radioactivity as well as hazardous chemical wastes, the investigator must be approved as an "Authorized User" by the BSU Radiation Safety Officer and the Authorized User's program must encompass the amounts and types of radioactive materials involved.

The treatability study regulations include limitations on quantity, allowed study processes, and duration of study/storage period. The regulations also state that proposed treatability studies are subject to regulatory oversight. The Idaho Department of Environmental Quality (IDEQ) and EHS must be notified no less than 45 days in writing before a project begins. The principal investigator for each project must provide IDEQ with a contractual Treatability Study agreement with the funding agency and sample provider (prior to obtaining any sample material). In addition, the principal investigator must provide copies of all correspondence with IDEQ to the EHS Office.

It may be desirable to conduct preliminary studies using new chemicals instead of actual hazardous waste. Studies with new chemicals are not subject to the special treatability study regulations. However, any hazardous waste created during the conduct of the study must be handled according to regular BSU procedures.

The principal researcher must work closely with EHS to assure regulatory compliance (e.g., a list of reporting requirements can be obtained from EHS). EHS personnel will offer technical and regulatory assistance to researchers interested in conducting Treatability Studies. The principal investigator should notify EHS of planned Treatability Studies as soon as feasible.

EHS must submit an annual report to IDEQ covering all BSU treatability studies. In order to collect information for this report, treatability study principal investigators are required to submit a yearly Treatability Study Progress Report to the EHS Office by December 31 of each year. The format of the report can be obtained by contacting EHS.

OTHER REGULATIONS AFFECTING BSU

Besides RCRA, there are other regulations which govern the way both hazardous materials and hazardous wastes are handled at BSU.

Toxic Substances Control Act (TSCA)

Several hazardous wastes, which historically have been generated on the BSU campus, are regulated under TSCA. These include asbestos materials and polychlorinated biphenyl (PCB) oils.

Asbestos is typically found in old buildings as either insulation tape or wall/ceiling materials. If it is removed, the material is then considered a hazardous waste and must be disposed of accordingly. Removal must be done by trained, qualified personnel using appropriate personal protective equipment (PPE).

Most fluorescent light ballasts manufactured before 1978 contain a small capacitor which used PCB oils as a dielectric. When these long-life ballasts are removed, the ballasts must be disposed of as hazardous waste. In addition, electrical transformers often used PCB oils as a dielectric fluid. Use of these oils is banned under TSCA, but electrical equipment which still contains these oils is encountered infrequently. If you suspect that a piece of electrical equipment may have PCB oil in it, or oil is leaking from a piece of electrical equipment, please call EHS for further assistance. Another potential source of PCBs is immersion oils used in microscopy because of their high refractive index.

EHS can assist in determining whether a specific oil contains PCBs, and if it does not. They can also help with proper containment and waste disposal of the PCB contaminated oil.

Superfund Amendments and Reauthorization Act (SARA)

BSU is also regulated under SARA, even though BSU does not dispose of chemical hazardous waste on the campus itself. SARA contains provisions for reporting the presence of chemicals which exceed certain quantities, and BSU may exceed these quantities for a few chemicals. Thus, it is important that quantity and location of these chemicals be known and made available to the EHS on a yearly basis.

City of Boise (NPDES) Permit

BSU is regulated as to what may be discharged into the drains and sewer connections which lead to the City of Boise's Publicly Owned Treatment Works (POTW). This regulation is in the form of pre-treatment standards which are set by the City so as not to exceed the discharge concentration limits of hazardous substances, referred to as Priority Pollutants, regulated by their National Pollution Discharge Elimination System (NPDES) permit. A Priority Pollutant list and their concentration limits are provided in Appendix H. Do not put any material into a drain or sewer unless you are sure it is not controlled by this or other regulations. If you have any questions, please call EHS at 426-3303 or 426-3493 for guidance.

Clean Air Act (CAA)

BSU is regulated under the CAA, which is administered in the State of Idaho by the Idaho Department of Environmental Quality (IDEQ). Currently, we do not create a sufficient volume per unit time of toxic airborne emissions to be of regulatory concern. However, this could change as the University grows or specified regulatory substances and levels change.

Emergency Planning Community Right-to-Know Act (EPCRA)

BSU is required to report the presence of hazardous materials that exceed certain amounts, called Threshold Planning Quantities (TPQs). BSU may exceed of these quantities for substances present on

the campus. Thus, it is important to know the quantities of hazardous material and their locations for reporting purposes.

Idaho General Safety and Health Standards

The Idaho General Safety and Health Standards contains information related to labeling and storage of hazardous materials, and a reference to the Code's application to school laboratories. Currently this code incorporates the 1982 Occupational Safety and Health Act (OSHA) standards found in the Code of Federal Regulations (CFR).

Reportable Quantities (RQ)

Certain hazardous materials have defined quantities which when released into the environment, are deemed to have sufficient hazard potential as to be reportable to several government agencies. These hazardous materials and their release reportable quantities are found in 40 CFR 302.4. Release to the environment includes a spill that might ultimately find its way into groundwater, such as through the soil or into a sewer or storm drain. It does not include releases contained within a structure. Please report the release to the environment of ANY quantity of hazardous material to EHS. EHS will determine reporting requirements.

EXCEPTIONS TO NORMAL STORAGE AND REMOVAL OF HAZARDOUS WASTES

Peroxides and Peroxide Forming Material

These two classes of materials may be found in a variety of locations on the BSU campus, and represent a risk to those who either use them or work in the vicinity of someone who does. Peroxide forming materials present a danger of explosion and fire caused by shock-sensitivity of the peroxide compounds which can form inside a container. These compounds generally have expiration dates beyond which they must not be used, but rather are to be declared hazardous waste and replaced if necessary. The expiration date may be assigned and printed on the container by the manufacturer, or may be related to when the container was first opened. If two dates are possible, the more conservative date should be used for safety reasons. Appendix G contains a partial listing of some of these hazardous materials.

Shock-Sensitive Material

Some materials are either shock-sensitive when bought, or more likely, become more shock-sensitive as they become older. A partial list of these important materials is given in Appendix H. Be sure to read and follow the label instructions for storage of these materials. If you discover a shock-sensitive material, do not attempt to move it yourself. Instead, notify EHS immediately, and attempt to keep others from handling the container(s).

Water Reactive Material

Some materials react with water to produce a variety of hazards, such as heat, gases, fire, or corrosion. A partial list of these materials is given in Appendix I. Be aware of what these materials are and notify EHS personnel when they are declared waste. Special precautions are required to safely store these materials.

Pyrophoric Compounds

Some compounds react spontaneously with air, moisture, or other compounds in the air to cause danger to those who either use them or are in the vicinity of those who do. A partial list of such compounds can

be found in Appendix J. Be aware of what these materials are and notify EHS personnel when they are declared waste.

Cylindered Gases

Pressurized gas cylinders present potential hazards of several types. First, some gases are under tremendous pressure and their accidental release can cause a gas bottle to become a deadly projectile that can penetrate a wall or kill a human being on impact. Second, the contents of bottles themselves may be toxic and should not be released unless in use under a fume hood or other exhausting device. The contents may also displace the normal atmosphere in an enclosed space and act as an asphyxiant. Finally, valves can become corroded with age and leak or disintegrate unexpectedly, resulting in the potential for serious damage to people and property. If you are unsure about a gas cylinder, no matter what its contents or pressure, contact EHS personnel for assistance.

Suspected Carcinogen, Mutagen, and Teratogen

There are some materials on the BSU campus that have no immediate (acute) effects on human health, but present long term (chronic) risk. Material Safety Data Sheets should indicate if a material is a suspected carcinogen, mutagen, or teratogen. Special care should be used when handling these materials. You can contact EHS personnel for assistance.

HAZARDOUS WASTE MINIMIZATION PROGRAMS

Disposal of hazardous waste is not without potentially adverse environmental impacts. Disposal costs for some categories of material continue to increase due to pressure to regulate more substances at lower concentrations and limitations on the kinds of wastes that can be disposed of in landfills. For these reasons it is important to minimize the amount of material that must be disposed of as hazardous wastes, as discussed below.

Disposal costs are not charged directly to specific departments or projects, but are borne by EHS. The objective of this system is to allow each department, researcher, and staff member to manage their hazardous wastes properly without direct economic penalty.

Materials Exchange

If you have excess materials, try to find someone within the BSU community who can use the material, rather than declare it as waste. If you need a material, try to find someone within the BSU community that has an excess of that material, rather than purchase more. EHS staff may be able to facilitate exchanges or help locate excess chemicals.

Less Is Better

Whenever possible, limit the amount of material you purchase to that which you can reasonably expect to use. Bulk purchases offer a lower price upfront, but disposal costs for excess hazardous materials are frequently much greater than the initial savings.

Alternative Materials

In some circumstances, there are alternative materials or methods to carry out a procedure that results in less hazardous waste than others. These methods should be used whenever possible to minimize the volume (and costs) of disposal at BSU. Please take time to plan waste minimization activities by careful consideration of alternative methods of achieving the same result. Your waste may turn out to be the material which moves BSU from a small quantity generator to a large quantity generator.

Experimental Quantities

Whenever possible, use the minimum quantity of materials for your work. Alternatives to full scale experiments include:

- microscale quantities of material to perform experiments;
- team versus individual performance of experiments; and
- instructor demonstrations versus team or individual performance.

Good Housekeeping

Segregate hazardous wastes from non-hazardous wastes and improve "housekeeping" to avoid contamination and spills. Consider recycling/reclamation of hazardous waste or waste components.

The Final Steps

According to interpretations of federal regulations, it is permissible to minimize waste by steps that are part of the actual process. These steps must be documented (written) as part of the procedure for an experiment and represents an important way to minimize the amount of hazardous waste generated. EHS personnel can provide information to assist in these efforts.

Appendix A – Waste Characteristics

1. Characteristic Ignitable Waste

DOO1 Waste Description

1. It is a liquid, other than an aqueous solution containing less than 24 percent alcohol by volume and has a flash point less than 60°C (140°F).

2. It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that is creates a hazard.

3. It is an ignitable compressed gas.

4. It is an oxidizer.

2. Characteristic Corrosive Waste

DOO2 Waste Description

1. It is aqueous and has a pH less than or equal to 2 or greater than or equal to 12.5.

2. It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35mm (0.250 inch) per year at a test temperature of 55°C (130°F).

3. Characteristic Reactive Waste

DOO3 Waste Description

1. It is normally unstable and readily undergoes violent change without detonating.

2. It reacts violently with water.

3. It forms potentially explosive mixtures with water.

4. When mixed with water, it generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.

5. It is a cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.

6. It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

7. It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

8. It is a forbidden explosive as defined in 49 CFR 173.51, or a Class A explosive as defined in 49 CFR 173.53, or a Class B explosive as defined in 49 CFR 173.88.

4. Characteristic Toxic Waste

Hazardous Waste #	Contaminant	CAS #	Level (mg/L)
D004	Arsenic	7440-38-2	5.0
D005	Barium	7440-39-3	100.0
D018	Benzene	71-43-2	0.5
D006	Cadmium	7440-43-9	1.0
D019	Carbon tetrachloride	56-23-5	0.5
D020	Chlordane	57-74-9	0.03
D021	Chlorobenzene	108-90-7	100.0

D022	Chloroform	67-66-3	6.0	
D007	Chromium	7440-47-3	5.0	
D023	o-Cresol	95-48-7	200.0	(1)
D024	m-Cresol	108-39-4	200.0	(1)
D025	p-Cresol	106-44-5	200.0	(1)
D026	Cresol		200.0	(1)
D016	2,4-D	94-75-7	10.0	
D027	1,4-Dichlorobenzene	106-46-7	7.5	
D028	1,2-Dichloroethane	107-06-2	0.5	
D029	1,1-Dichloroethylene	75-35-4	0.7	
D030	2,4-Dinitrotoluene	121-14-2	0.13	(1)
D012	Endrin	72-20-8	0.02	
D031	Heptachlor (and its epoxide).	76-44-8	0.008	
D032	Hexachlorobenzene	118-74-1	0.13	(1)
D033	Hexachlorobutadiene	87-68-3	0.5	
D034	Hexachloroethane	67-72-1	3.0	
D008	Lead	7439-92-1	5.0	
D013	Lindane	58-89-9	0.4	
D009	Mercury	7439-97-6	0.2	
D014	Methoxychlor	72-43-5	10.0	
D035	Methyl ethyl ketone	78-93-3	200.0	
D036	Nitrobenzene	98-95-3	2.0	
D037	Pentrachlorophenol	87-86-5	100.0	
D038	Pyridine	110-86-1	5.0	(1)
D010	Selenium	7782-49-2	1.0	
D011	Silver	7440-22-4	5.0	
D039	Tetrachloroethylene	127-18-4	0.7	
D015	Toxaphene	8001-35-2	0.5	
D040	Trichloroethylene	79-01-6	0.5	
D041	2,4,5-Trichlorophenol	95-95-4	400.0	
D042	2,4,6-Trichlorophenol	88-06-2	2.0	
D017	2,4,5-TP (Silvex)	93-72-1	1.0	
D043	Vinyl chloride	75-01-4	0.2	

(1) Quantitation limit is greater than the calculated regulatory level. The quantitation limit therefore becomes the regulatory level.
(2) If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used. The regulatory level of total cresol is 200 mg/l.

(This list was modified from EPA documents: http://www.epa.gov/epaoswer/hotline/training/hwid05.pdf)

Appendix B – P Listed Waste

Hazardous Waste No.	Chemical abstracts No.	Substance
P023	107–20–0	Acetaldehyde, chloro-
P002	591–08–2	Acetamide, N-(aminothioxomethyl)-
P057	640–19–7	Acetamide, 2-fluoro-
P058	62–74–8	Acetic acid, fluoro-, sodium salt
P002	591–08–2	1-Acetyl-2-thiourea
P003	107–02–8	Acrolein
P070	116–06–3	Aldicarb
P203	1646–88–4	Aldicarb sulfone.
P004	309–00–2	Aldrin
P005	107–18–6	Allyl alcohol
P006	20859–73–8	Aluminum phosphide (R,T)
P007	2763–96–4	5-(Aminomethyl)-3-isoxazolol
P008	504–24–5	4-Aminopyridine
P009	131–74–8	Ammonium picrate (R)
P119	7803–55–6	Ammonium vanadate
P099	506–61–6	Argentate(1-), bis(cyano-C)-, potassium
P010	7778–39–4	Arsenic acid H3AsO4
P012	1327–53–3	Arsenic oxide As2O3
P011	1303–28–2	Arsenic oxide As2O5
P011	1303–28–2	Arsenic pentoxide
P012	1327–53–3	Arsenic trioxide
P038	692–42–2	Arsine, diethyl-
P036	696–28–6	Arsonous dichloride, phenyl-
P054	151–56–4	Aziridine
P067	75–55–8	Aziridine, 2-methyl-
P013	542–62–1	Barium cyanide
P024	106–47–8	Benzenamine, 4-chloro-
P077	100–01–6	Benzenamine, 4-nitro-
P028	100–44–7	Benzene, (chloromethyl)-
P042	51–43–4	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-
P046	122–09–8	Benzeneethanamine, alpha,alpha-dimethyl-
P014	108–98–5	Benzenethiol
P127	1563–66–2	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate.
P188	57–64–7	Benzoic acid, 2-hydroxy-, compd. with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo[2,3-b]indol-5-yl methylcarbamate ester (1:1).
P001	181–81–2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, & salts, when present at concentrations greater than 0.3%

P028	100–44–7	Benzyl chloride
P015	7440–41–7	Beryllium powder
P017	598–31–2	Bromoacetone
P018	357–57–3	Brucine
P045	39196–18–4	2-Butanone, 3,3-dimethyl-1-(methylthio)-, O-[(methylamino)carbonyl] oxime
P021	592–01–8	Calcium cyanide / $Ca(CN)_2$
P189	55285–14–8	Carbamic acid, [(dibutylamino)- thio]methyl-, 2,3-dihydro-2,2-dimethyl- 7-benzofuranyl ester.
P191	644–64–4	Carbamic acid, dimethyl-, 1-[(dimethyl-amino)carbonyl]- 5-methyl-1H-pyrazol-3-yl ester.
P192	119–38–0	Carbamic acid, dimethyl-, 3-methyl-1- (1-methylethyl)-1H- pyrazol-5-yl ester.
P190	1129–41–5	Carbamic acid, methyl-, 3-methylphenyl ester.
P127	1563–66–2	Carbofuran.
P022	75–15–0	Carbon disulfide
P095	75–44–5	Carbonic dichloride
P189	55285–14–8	Carbosulfan.
P023	107–20–0	Chloroacetaldehyde
P024	106–47–8	p-Chloroaniline
P026	5344–82–1	1-(o-Chlorophenyl)thiourea
P027	542–76–7	3-Chloropropionitrile
P029	544–92–3	Copper cyanide
P029	544–92–3	Copper cyanide Cu(CN)
P202	64–00–6	m-Cumenyl methylcarbamate.
P030		Cyanides (soluble cyanide salts), not otherwise specified
P031	460–19–5	Cyanogen
P033	506–77–4	Cyanogen chloride
P033	506–77–4	Cyanogen chloride (CN)Cl
P034	131–89–5	2-Cyclohexyl-4,6-dinitrophenol
P016	542–88–1	Dichloromethyl ether
P036	696–28–6	Dichlorophenylarsine
P037	60–57–1	Dieldrin
P038	692–42–2	Diethylarsine
P041	311–45–5	Diethyl-p-nitrophenyl phosphate
P040	297–97–2	O,O-Diethyl O-pyrazinyl phosphorothioate
P043	55–91–4	Diisopropylfluorophosphate (DFP)
P004	309–00–2	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa- chloro-1,4,4a,5,8,8a,-hexahydro-, (1alpha,4alpha,4abeta,5alpha,8alpha,8abeta)-
P060	465–73–6	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10-hexa- chloro-1,4,4a,5,8,8a-hexahydro-, (1alpha,4alpha,4abeta,5beta,8beta,8abeta)-
P037	60–57–1	2,7:3,6-Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2aalpha,3beta,6beta,6aalpha,7beta, 7aalpha)-
P051	172–20–8	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-

		1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta, 7aalpha)-, & metabolites
P044	60–51–5	Dimethoate
P046	122–09–8	alpha,alpha-Dimethylphenethylamine
P191	644–64–4	Dimetilan.
P047	1534–52–1	4,6-Dinitro-o-cresol, & salts
P048	51–28–5	2,4-Dinitrophenol
P020	88–85–7	Dinoseb
P085	152–16–9	Diphosphoramide, octamethyl-
P111	107–49–3	Diphosphoric acid, tetraethyl ester
P039	298–04–4	Disulfoton
P049	541–53–7	Dithiobiuret
P185	26419–73–8	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O- [(methylamino)-carbonyl]oxime.
P050	115–29–7	Endosulfan
P088	145–73–3	Endothall
P051	72–20–8	Endrin
P051	72–20–8	Endrin, & metabolites
P042	51–43–4	Epinephrine
P031	460–19–5	Ethanedinitrile
P194	23135–22–0	Ethanimidothioic acid, 2-(dimethylamino)-N-[[(methylamino) carbonyl]oxy]-2-oxo-, methyl ester.
P066	16752–77–5	Ethanimidothioic acid, N-[[(methylamino)carbonyl]oxy]-, methyl ester
P101	107–12–0	Ethyl cyanide
P054	151–56–4	Ethyleneimine
P097	52–85–7	Famphur
P056	7782–41–4	Fluorine
P057	640–19–7	Fluoroacetamide
P058	62–74–8	Fluoroacetic acid, sodium salt
P198	23422–53–9	Formetanate hydrochloride.
P197	17702–57–7	Formparanate.
P065	628–86–4	Fulminic acid, mercury(2+) salt (R,T)
P059	76–44–8	Heptachlor
P062	757–58–4	Hexaethyl tetraphosphate
P116	79–19–6	Hydrazinecarbothioamide
P068	60–34–4	Hydrazine, methyl-
P063	74–90–8	Hydrocyanic acid
P063	74–90–8	Hydrogen cyanide
P096	7803–51–2	Hydrogen phosphide
P060	465–73–6	Isodrin
P192	119–38–0	Isolan.

P202	64–00–6	3-Isopropylphenyl N-methylcarbamate.
P007	2763–96–4	3(2H)-Isoxazolone, 5-(aminomethyl)-
P196	15339–36–3	Manganese, bis(dimethylcarbamodithioato-S,S′)-,
P196	15339–36–3	Manganese dimethyldithiocarbamate.
P092	62–38–4	Mercury, (acetato-O)phenyl-
P065	628–86–4	Mercury fulminate (R,T)
P082	62–75–9	Methanamine, N-methyl-N-nitroso-
P064	624–83–9	Methane, isocyanato-
P016	542–88–1	Methane, oxybis[chloro-
P112	509–14–8	Methane, tetranitro- (R)
P118	75–70–7	Methanethiol, trichloro-
P198	23422–53–9	Methanimidamide, N,N-dimethyl-N′-[3-[[(methylamino)-carbonyl]oxy]phenyl]-, monohydrochloride.
P197	17702–57–7	Methanimidamide, N,N-dimethyl-N′-[2-methyl-4-[[(methylamino)carbonyl]oxy]phenyl]-
P050	115–29–7	6,9-Methano-2,4,3-benzodioxathiepin, 6,7,8,9,10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-, 3-oxide
P059	76–44–8	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7,7a-tetrahydro-
P199	2032–65–7	Methiocarb.
P066	16752–77–5	Methomyl
P068	60–34–4	Methyl hydrazine
P064	624–83–9	Methyl isocyanate
P069	75–86–5	2-Methyllactonitrile
P071	298–00–0	Methyl parathion
P190	1129–41–5	Metolcarb.
P128	315–8–4	Mexacarbate.
P072	86–88–4	alpha-Naphthylthiourea
P073	13463–39–3	Nickel carbonyl
P073	13463–39–3	Nickel carbonyl $Ni(CO)_4$, (T-4)-
P074	557–19–7	Nickel cyanide
P074	557–19–7	Nickel cyanide $Ni(CN)_2$
P075	154–11–5	Nicotine, & salts
P076	10102–43–9	Nitric oxide
P077	100–01–6	p-Nitroaniline
P078	10102–44–0	Nitrogen dioxide
P076	10102–43–9	Nitrogen oxide NO
P078	10102–44–0	Nitrogen oxide NO_2
P081	55–63–0	Nitroglycerine (R)
P082	62–75–9	N-Nitrosodimethylamine
P084	4549–40–0	N-Nitrosomethylvinylamine
P085	152–16–9	Octamethylpyrophosphoramide
P087	20816–12–0	Osmium oxide OsO4, (T-4)-

P087	20816–12–0	Osmium tetroxide
P088	145–73–3	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid
P194	23135–22–0	Oxamyl.
P089	56–38–2	Parathion
P034	131–89–5	Phenol, 2-cyclohexyl-4,6-dinitro-
P048	51–28–5	Phenol, 2,4-dinitro-
P047	1534–52–1	Phenol, 2-methyl-4,6-dinitro-, & salts
P020	88–85–7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-
P009	131–74–8	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P128	315–18–4	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester).
P199	2032–65–7	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate
P202	64–00–6	Phenol, 3-(1-methylethyl)-, methyl carbamate.
P201	2631–37–0	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate.
P092	62–38–4	Phenylmercury acetate
P093	103–85–5	Phenylthiourea
P094	298–02–2	Phorate
P095	75–44–5	Phosgene
P096	7803–51–2	Phosphine
P041	311–45–5	Phosphoric acid, diethyl 4-nitrophenyl ester
P039	298–04–4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester
P094	298–02–2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester
P044	60–51–5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester
P043	55–91–4	Phosphorofluoridic acid, bis(1-methylethyl) ester
P089	56–38–2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester
P040	297–97–2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
P097	52–85–7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester
P071	298–00–0	Phosphorothioic acid, O,O,-dimethyl O-(4-nitrophenyl) ester
P204	57–47–6	Physostigmine.
P188	57–64–7	Physostigmine salicylate.
P110	78–00–2	Plumbane, tetraethyl-
P098	151–50–8	Potassium cyanide / K(CN)
P099	506–61–6	Potassium silver cyanide
P201	2631–37–0	Promecarb
P070	116–06–3	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime
P203	1646–88–4	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O-[(methylamino)carbonyl] oxime.
P101	107–12–0	Propanenitrile
P027	542–76–7	Propanenitrile, 3-chloro-
P069	75–86–5	Propanenitrile, 2-hydroxy-2-methyl-
P081	55–63–0	1,2,3-Propanetriol, trinitrate (R)
P017	598–31–2	2-Propanone, 1-bromo-
P102	107–19–7	Propargyl alcohol

P003	107–02–8	2-Propenal
P005	107–18–6	2-Propen-1-ol
P067	75–55–8	1,2-Propylenimine
P102	107–19–7	2-Propyn-1-ol
P008	504–24–5	4-Pyridinamine
P075	154–11–5	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, & salts
P204	57–47–6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)-.
P114	12039–52–0	Selenious acid, dithallium(1+) salt
P103	630–10–4	Selenourea
P104	506–64–9	Silver cyanide
P104	506–64–9	Silver cyanide Ag(CN)
P105	26628–22–8	Sodium azide
P106	143–33–9	Sodium cyanide Na(CN)
P108	157–24–9	Strychnidin-10-one, & salts
P018	357–57–3	Strychnidin-10-one, 2,3-dimethoxy-
P108	157–24–9	Strychnine, & salts
P115	7446–18–6	Sulfuric acid, dithallium(1+) salt
P109	3689–24–5	Tetraethyldithiopyrophosphate
P110	78–00–2	Tetraethyl lead
P111	107–49–3	Tetraethyl pyrophosphate
P112	509–14–8	Tetranitromethane (R)
P062	757–58–4	Tetraphosphoric acid, hexaethyl ester
P113	1314–32–5	Thallic oxide
P113	1314–32–5	Thallium oxide Tl_2O_3
P114	12039–52–0	Thallium(I) selenite
P115	7446–18–6	Thallium(I) sulfate
P109	3689–24–5	Thiodiphosphoric acid, tetraethyl ester
P045	39196–18–4	Thiofanox
P049	541–53–7	Thioimidodicarbonic diamide $[(H_2N)C(S)]_2NH$
P014	108–98–5	Thiophenol
P116	79–19–6	Thiosemicarbazide
P026	5344–82–1	Thiourea, (2-chlorophenyl)-
P072	86–88–4	Thiourea, 1-naphthalenyl-
P093	103–85–5	Thiourea, phenyl-
P185	26419–73–8	Tirpate.
P123	8001–35–2	Toxaphene
P118	75–70–7	Trichloromethanethiol
P119	7803–55–6	Vanadic acid, ammonium salt
P120	1314–62–1	Vanadium oxide V_2O_5
P120	1314–62–1	Vanadium pentoxide
P084	4549–40–0	Vinylamine, N-methyl-N-nitroso-

P001	181–81–2	Warfarin, & salts, when present at concentrations greater than 0.3%
P205	137–30–4	Zinc, bis(dimethylcarbamodithioato-S,S′)-,
P121	557–21–1	Zinc cyanide $Zn(CN)_2$
P122	1314–84–7	Zinc phosphide Zn_3P_2, when present at concentrations greater than 10% (R,T)
P205	137–30–4	Ziram.

[1]CAS Number given for parent compound only.

(f) The commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products referred to in paragraphs (a) through (d) of this section, are identified as toxic wastes (T), unless otherwise designated and are subject to the small quantity generator exclusion defined in §261.5 (a) and (g).

Appendix C – U Listed Waste

Hazardous Waste No.	Chemical abstracts No.	Substance
U394	30558–43–1	A2213.
U001	75–07–0	Acetaldehyde (I)
U034	75–87–6	Acetaldehyde, trichloro-
U187	62–44–2	Acetamide, N-(4-ethoxyphenyl)-
U005	53–96–3	Acetamide, N-9H-fluoren-2-yl-
U240	[1]94–75–7	Acetic acid, (2,4-dichlorophenoxy)-, salts & esters
U112	141–78–6	Acetic acid ethyl ester (I)
U144	301–04–2	Acetic acid, lead(2+) salt
U214	563–68–8	Acetic acid, thallium(1+) salt
see F027	93–76–5	Acetic acid, (2,4,5-trichlorophenoxy)-
U002	67–64–1	Acetone (I)
U003	75–05–8	Acetonitrile (I,T)
U004	98–86–2	Acetophenone
U005	53–96–3	2-Acetylaminofluorene
U006	75–36–5	Acetyl chloride (C,R,T)
U007	79–06–1	Acrylamide
U008	79–10–7	Acrylic acid (I)
U009	107–13–1	Acrylonitrile
U011	61–82–5	Amitrole
U012	62–53–3	Aniline (I,T)
U136	75–60–5	Arsinic acid, dimethyl-
U014	492–80–8	Auramine
U015	115–02–6	Azaserine
U010	50–07–7	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-, [1aS-(1aalpha, 8beta,8aalpha,8balpha)]-
U280	101–27–9	Barban.
U278	22781–23–3	Bendiocarb.
U364	22961–82–6	Bendiocarb phenol.
U271	17804–35–2	Benomyl.
U157	56–49–5	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-
U016	225–51–4	Benz[c]acridine
U017	98–87–3	Benzal chloride
U192	23950–58–5	Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-
U018	56–55–3	Benz[a]anthracene
U094	57–97–6	Benz[a]anthracene, 7,12-dimethyl-
U012	62–53–3	Benzenamine (I,T)
U014	492–80–8	Benzenamine, 4,4′-carbonimidoylbis[N,N-dimethyl-
U049	3165–93–3	Benzenamine, 4-chloro-2-methyl-, hydrochloride

U093	60–11–7	Benzenamine, N,N-dimethyl-4-(phenylazo)-
U328	95–53–4	Benzenamine, 2-methyl-
U353	106–49–0	Benzenamine, 4-methyl-
U158	101–14–4	Benzenamine, 4,4′-methylenebis[2-chloro-
U222	636–21–5	Benzenamine, 2-methyl-, hydrochloride
U181	99–55–8	Benzenamine, 2-methyl-5-nitro-
U019	71–43–2	Benzene (I,T)
U038	510–15–6	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester
U030	101–55–3	Benzene, 1-bromo-4-phenoxy-
U035	305–03–3	Benzenebutanoic acid, 4-[bis(2-chloroethyl)amino]-
U037	108–90–7	Benzene, chloro-
U221	25376–45–8	Benzenediamine, ar-methyl-
U028	117–81–7	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester
U069	84–74–2	1,2-Benzenedicarboxylic acid, dibutyl ester
U088	84–66–2	1,2-Benzenedicarboxylic acid, diethyl ester
U102	131–11–3	1,2-Benzenedicarboxylic acid, dimethyl ester
U107	117–84–0	1,2-Benzenedicarboxylic acid, dioctyl ester
U070	95–50–1	Benzene, 1,2-dichloro-
U071	541–73–1	Benzene, 1,3-dichloro-
U072	106–46–7	Benzene, 1,4-dichloro-
U060	72–54–8	Benzene, 1,1′-(2,2-dichloroethylidene)bis[4-chloro-
U017	98–87–3	Benzene, (dichloromethyl)-
U223	26471–62–5	Benzene, 1,3-diisocyanatomethyl- (R,T)
U239	1330–20–7	Benzene, dimethyl- (I,T)
U201	108–46–3	1,3-Benzenediol
U127	118–74–1	Benzene, hexachloro-
U056	110–82–7	Benzene, hexahydro- (I)
U220	108–88–3	Benzene, methyl-
U105	121–14–2	Benzene, 1-methyl-2,4-dinitro-
U106	606–20–2	Benzene, 2-methyl-1,3-dinitro-
U055	98–82–8	Benzene, (1-methylethyl)- (I)
U169	98–95–3	Benzene, nitro-
U183	608–93–5	Benzene, pentachloro-
U185	82–68–8	Benzene, pentachloronitro-
U020	98–09–9	Benzenesulfonic acid chloride (C,R)
U020	98–09–9	Benzenesulfonyl chloride (C,R)
U207	95–94–3	Benzene, 1,2,4,5-tetrachloro-
U061	50–29–3	Benzene, 1,1′-(2,2,2-trichloroethylidene)bis[4-chloro-
U247	72–43–5	Benzene, 1,1′-(2,2,2-trichloroethylidene)bis[4- methoxy-
U023	98–07–7	Benzene, (trichloromethyl)-
U234	99–35–4	Benzene, 1,3,5-trinitro-
U021	92–87–5	Benzidine

U202	[1]81–07–2	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, & salts
U278	22781–23–3	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate.
U364	22961–82–6	1,3-Benzodioxol-4-ol, 2,2-dimethyl-,
U203	94–59–7	1,3-Benzodioxole, 5-(2-propenyl)-
U141	120–58–1	1,3-Benzodioxole, 5-(1-propenyl)-
U367	1563–38–8	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-
U090	94–58–6	1,3-Benzodioxole, 5-propyl-
U064	189–55–9	Benzo[rst]pentaphene
U248	[1]81–81–2	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations of 0.3% or less
U022	50–32–8	Benzo[a]pyrene
U197	106–51–4	p-Benzoquinone
U023	98–07–7	Benzotrichloride (C,R,T)
U085	1464–53–5	2,2′-Bioxirane
U021	92–87–5	[1,1′-Biphenyl]-4,4′-diamine
U073	91–94–1	[1,1′-Biphenyl]-4,4′-diamine, 3,3′-dichloro-
U091	119–90–4	[1,1′-Biphenyl]-4,4′-diamine, 3,3′-dimethoxy-
U095	119–93–7	[1,1′-Biphenyl]-4,4′-diamine, 3,3′-dimethyl-
U225	75–25–2	Bromoform
U030	101–55–3	4-Bromophenyl phenyl ether
U128	87–68–3	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U172	924–16–3	1-Butanamine, N-butyl-N-nitroso-
U031	71–36–3	1-Butanol (I)
U159	78–93–3	2-Butanone (I,T)
U160	1338–23–4	2-Butanone, peroxide (R,T)
U053	4170–30–3	2-Butenal
U074	764–41–0	2-Butene, 1,4-dichloro- (I,T)
U143	303–34–4	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,
		[1S-[1alpha(Z),7(2S*,3R*),7aalpha]]-
U031	71–36–3	n-Butyl alcohol (I)
U136	75–60–5	Cacodylic acid
U032	13765–19–0	Calcium chromate
U372	10605–21–7	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester.
U271	17804–35–2	Carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl]-, methyl ester.
U280	101–27–9	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester.
U238	51–79–6	Carbamic acid, ethyl ester
U178	615–53–2	Carbamic acid, methylnitroso-, ethyl ester
U373	122–42–9	Carbamic acid, phenyl-, 1-methylethyl ester.
U409	23564–05–8	Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester.
U097	79–44–7	Carbamic chloride, dimethyl-

U389	2303–17–5	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trichloro-2-propenyl) ester.
U387	52888–80–9	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester.
U114	[1]111–54–6	Carbamodithioic acid, 1,2-ethanediylbis-, salts & esters
U062	2303–16–4	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester
U279	63–25–2	Carbaryl.
U372	10605–21–7	Carbendazim.
U367	1563–38–8	Carbofuran phenol.
U215	6533–73–9	Carbonic acid, dithallium(1+) salt
U033	353–50–4	Carbonic difluoride
U156	79–22–1	Carbonochloridic acid, methyl ester (I,T)
U033	353–50–4	Carbon oxyfluoride (R,T)
U211	56–23–5	Carbon tetrachloride
U034	75–87–6	Chloral
U035	305–03–3	Chlorambucil
U036	57–74–9	Chlordane, alpha & gamma isomers
U026	494–03–1	Chlornaphazin
U037	108–90–7	Chlorobenzene
U038	510–15–6	Chlorobenzilate
U039	59–50–7	p-Chloro-m-cresol
U042	110–75–8	2-Chloroethyl vinyl ether
U044	67–66–3	Chloroform
U046	107–30–2	Chloromethyl methyl ether
U047	91–58–7	beta-Chloronaphthalene
U048	95–57–8	o-Chlorophenol
U049	3165–93–3	4-Chloro-o-toluidine, hydrochloride
U032	13765–19–0	Chromic acid H_2CrO_4, calcium salt
U050	218–01–9	Chrysene
U051		Creosote
U052	1319–77–3	Cresol (Cresylic acid)
U053	4170–30–3	Crotonaldehyde
U055	98–82–8	Cumene (I)
U246	506–68–3	Cyanogen bromide (CN)Br
U197	106–51–4	2,5-Cyclohexadiene-1,4-dione
U056	110–82–7	Cyclohexane (I)
U129	58–89–9	Cyclohexane, 1,2,3,4,5,6-hexachloro-,
		(1alpha,2alpha,3beta,4alpha,5alpha,6beta)-
U057	108–94–1	Cyclohexanone (I)
U130	77–47–4	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
U058	50–18–0	Cyclophosphamide
U240	[1]94–75–7	2,4-D, salts & esters
U059	20830–81–3	Daunomycin
U060	72–54–8	DDD

U061	50–29–3	DDT
U062	2303–16–4	Diallate
U063	53–70–3	Dibenz[a,h]anthracene
U064	189–55–9	Dibenzo[a,i]pyrene
U066	96–12–8	1,2-Dibromo-3-chloropropane
U069	84–74–2	Dibutyl phthalate
U070	95–50–1	o-Dichlorobenzene
U071	541–73–1	m-Dichlorobenzene
U072	106–46–7	p-Dichlorobenzene
U073	91–94–1	3,3′-Dichlorobenzidine
U074	764–41–0	1,4-Dichloro-2-butene (I,T)
U075	75–71–8	Dichlorodifluoromethane
U078	75–35–4	1,1-Dichloroethylene
U079	156–60–5	1,2-Dichloroethylene
U025	111–44–4	Dichloroethyl ether
U027	108–60–1	Dichloroisopropyl ether
U024	111–91–1	Dichloromethoxy ethane
U081	120–83–2	2,4-Dichlorophenol
U082	87–65–0	2,6-Dichlorophenol
U084	542–75–6	1,3-Dichloropropene
U085	1464–53–5	1,2:3,4-Diepoxybutane (I,T)
U108	123–91–1	1,4-Diethyleneoxide
U028	117–81–7	Diethylhexyl phthalate
U395	5952–26–1	Diethylene glycol, dicarbamate.
U086	1615–80–1	N,N′-Diethylhydrazine
U087	3288–58–2	O,O-Diethyl S-methyl dithiophosphate
U088	84–66–2	Diethyl phthalate
U089	56–53–1	Diethylstilbesterol
U090	94–58–6	Dihydrosafrole
U091	119–90–4	3,3′-Dimethoxybenzidine
U092	124–40–3	Dimethylamine (I)
U093	60–11–7	p-Dimethylaminoazobenzene
U094	57–97–6	7,12-Dimethylbenz[a]anthracene
U095	119–93–7	3,3′-Dimethylbenzidine
U096	80–15–9	alpha,alpha-Dimethylbenzylhydroperoxide (R)
U097	79–44–7	Dimethylcarbamoyl chloride
U098	57–14–7	1,1-Dimethylhydrazine
U099	540–73–8	1,2-Dimethylhydrazine
U101	105–67–9	2,4-Dimethylphenol
U102	131–11–3	Dimethyl phthalate
U103	77–78–1	Dimethyl sulfate
U105	121–14–2	2,4-Dinitrotoluene

U106	606–20–2	2,6-Dinitrotoluene
U107	117–84–0	Di-n-octyl phthalate
U108	123–91–1	1,4-Dioxane
U109	122–66–7	1,2-Diphenylhydrazine
U110	142–84–7	Dipropylamine (I)
U111	621–64–7	Di-n-propylnitrosamine
U041	106–89–8	Epichlorohydrin
U001	75–07–0	Ethanal (I)
U404	121–44–8	Ethanamine, N,N-diethyl-
U174	55–18–5	Ethanamine, N-ethyl-N-nitroso-
U155	91–80–5	1,2-Ethanediamine, N,N-dimethyl-N′-2-pyridinyl-N′-(2-thienylmethyl)-
U067	106–93–4	Ethane, 1,2-dibromo-
U076	75–34–3	Ethane, 1,1-dichloro-
U077	107–06–2	Ethane, 1,2-dichloro-
U131	67–72–1	Ethane, hexachloro-
U024	111–91–1	Ethane, 1,1′-[methylenebis(oxy)]bis[2-chloro-
U117	60–29–7	Ethane, 1,1′-oxybis-(I)
U025	111–44–4	Ethane, 1,1′-oxybis[2-chloro-
U184	76–01–7	Ethane, pentachloro-
U208	630–20–6	Ethane, 1,1,1,2-tetrachloro-
U209	79–34–5	Ethane, 1,1,2,2-tetrachloro-
U218	62–55–5	Ethanethioamide
U226	71–55–6	Ethane, 1,1,1-trichloro-
U227	79–00–5	Ethane, 1,1,2-trichloro-
U410	59669–26–0	Ethanimidothioic acid, N,N′- [thiobis[(methylimino)carbonyloxy]]bis-, dimethyl ester
U394	30558–43–1	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester.
U359	110–80–5	Ethanol, 2-ethoxy-
U173	1116–54–7	Ethanol, 2,2′-(nitrosoimino)bis-
U395	5952–26–1	Ethanol, 2,2′-oxybis-, dicarbamate.
U004	98–86–2	Ethanone, 1-phenyl-
U043	75–01–4	Ethene, chloro-
U042	110–75–8	Ethene, (2-chloroethoxy)-
U078	75–35–4	Ethene, 1,1-dichloro-
U079	156–60–5	Ethene, 1,2-dichloro-, (E)-
U210	127–18–4	Ethene, tetrachloro-
U228	79–01–6	Ethene, trichloro-
U112	141–78–6	Ethyl acetate (I)
U113	140–88–5	Ethyl acrylate (I)
U238	51–79–6	Ethyl carbamate (urethane)
U117	60–29–7	Ethyl ether (I)
U114	[1]111–54–6	Ethylenebisdithiocarbamic acid, salts & esters

U067	106–93–4	Ethylene dibromide
U077	107–06–2	Ethylene dichloride
U359	110–80–5	Ethylene glycol monoethyl ether
U115	75–21–8	Ethylene oxide (I,T)
U116	96–45–7	Ethylenethiourea
U076	75–34–3	Ethylidene dichloride
U118	97–63–2	Ethyl methacrylate
U119	62–50–0	Ethyl methanesulfonate
U120	206–44–0	Fluoranthene
U122	50–00–0	Formaldehyde
U123	64–18–6	Formic acid (C,T)
U124	110–00–9	Furan (I)
U125	98–01–1	2-Furancarboxaldehyde (I)
U147	108–31–6	2,5-Furandione
U213	109–99–9	Furan, tetrahydro-(I)
U125	98–01–1	Furfural (I)
U124	110–00–9	Furfuran (I)
U206	18883–66–4	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-, D-
U206	18883–66–4	D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-
		carbonyl]amino]-
U126	765–34–4	Glycidylaldehyde
U163	70–25–7	Guanidine, N-methyl-N′-nitro-N-nitroso-
U127	118–74–1	Hexachlorobenzene
U128	87–68–3	Hexachlorobutadiene
U130	77–47–4	Hexachlorocyclopentadiene
U131	67–72–1	Hexachloroethane
U132	70–30–4	Hexachlorophene
U243	1888–71–7	Hexachloropropene
U133	302–01–2	Hydrazine (R,T)
U086	1615–80–1	Hydrazine, 1,2-diethyl-
U098	57–14–7	Hydrazine, 1,1-dimethyl-
U099	540–73–8	Hydrazine, 1,2-dimethyl-
U109	122–66–7	Hydrazine, 1,2-diphenyl-
U134	7664–39–3	Hydrofluoric acid (C,T)
U134	7664–39–3	Hydrogen fluoride (C,T)
U135	7783–06–4	Hydrogen sulfide
U135	7783–06–4	Hydrogen sulfide H_2S
U096	80–15–9	Hydroperoxide, 1-methyl-1-phenylethyl- (R)
U116	96–45–7	2-Imidazolidinethione
U137	193–39–5	Indeno[1,2,3-cd]pyrene
U190	85–44–9	1,3-Isobenzofurandione
U140	78–83–1	Isobutyl alcohol (I,T)

U141	120–58–1	Isosafrole
U142	143–50–0	Kepone
U143	303–34–4	Lasiocarpine
U144	301–04–2	Lead acetate
U146	1335–32–6	Lead, bis(acetato-O)tetrahydroxytri-
U145	7446–27–7	Lead phosphate
U146	1335–32–6	Lead subacetate
U129	58–89–9	Lindane
U163	70–25–7	MNNG
U147	108–31–6	Maleic anhydride
U148	123–33–1	Maleic hydrazide
U149	109–77–3	Malononitrile
U150	148–82–3	Melphalan
U151	7439–97–6	Mercury
U152	126–98–7	Methacrylonitrile (I, T)
U092	124–40–3	Methanamine, N-methyl- (I)
U029	74–83–9	Methane, bromo-
U045	74–87–3	Methane, chloro- (I, T)
U046	107–30–2	Methane, chloromethoxy-
U068	74–95–3	Methane, dibromo-
U080	75–09–2	Methane, dichloro-
U075	75–71–8	Methane, dichlorodifluoro-
U138	74–88–4	Methane, iodo-
U243	1888–71–7	Hexachloropropene
U133	302–01–2	Hydrazine (R,T)
U086	1615–80–1	Hydrazine, 1,2-diethyl-
U098	57–14–7	Hydrazine, 1,1-dimethyl-
U099	540–73–8	Hydrazine, 1,2-dimethyl-
U109	122–66–7	Hydrazine, 1,2-diphenyl-
U134	7664–39–3	Hydrofluoric acid (C,T)
U134	7664–39–3	Hydrogen fluoride (C,T)
U135	7783–06–4	Hydrogen sulfide
U135	7783–06–4	Hydrogen sulfide H_2S
U096	80–15–9	Hydroperoxide, 1-methyl-1-phenylethyl- (R)
U116	96–45–7	2-Imidazolidinethione
U137	193–39–5	Indeno[1,2,3-cd]pyrene
U190	85–44–9	1,3-Isobenzofurandione
U140	78–83–1	Isobutyl alcohol (I,T)
U141	120–58–1	Isosafrole
U142	143–50–0	Kepone
U143	303–34–4	Lasiocarpine
U144	301–04–2	Lead acetate

U146	1335–32–6	Lead, bis(acetato-O)tetrahydroxytri-
U145	7446–27–7	Lead phosphate
U146	1335–32–6	Lead subacetate
U129	58–89–9	Lindane
U163	70–25–7	MNNG
U147	108–31–6	Maleic anhydride
U148	123–33–1	Maleic hydrazide
U149	109–77–3	Malononitrile
U150	148–82–3	Melphalan
U151	7439–97–6	Mercury
U152	126–98–7	Methacrylonitrile (I, T)
U092	124–40–3	Methanamine, N-methyl- (I)
U029	74–83–9	Methane, bromo-
U045	74–87–3	Methane, chloro- (I, T)
U046	107–30–2	Methane, chloromethoxy-
U068	74–95–3	Methane, dibromo-
U080	75–09–2	Methane, dichloro-
U075	75–71–8	Methane, dichlorodifluoro-
U138	74–88–4	Methane, iodo-
U119	62–50–0	Methanesulfonic acid, ethyl ester
U211	56–23–5	Methane, tetrachloro-
U153	74–93–1	Methanethiol (I, T)
U225	75–25–2	Methane, tribromo-
U044	67–66–3	Methane, trichloro-
U121	75–69–4	Methane, trichlorofluoro-
U036	57–74–9	4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8-octachloro-2,3,3a,4,7,7a-hexahydro-
U154	67–56–1	Methanol (I)
U155	91–80–5	Methapyrilene
U142	143–50–0	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-
U247	72–43–5	Methoxychlor
U154	67–56–1	Methyl alcohol (I)
U029	74–83–9	Methyl bromide
U186	504–60–9	1-Methylbutadiene (I)
U045	74–87–3	Methyl chloride (I,T)
U156	79–22–1	Methyl chlorocarbonate (I,T)
U226	71–55–6	Methyl chloroform
U157	56–49–5	3-Methylcholanthrene
U158	101–14–4	4,4′-Methylenebis(2-chloroaniline)
U068	74–95–3	Methylene bromide
U080	75–09–2	Methylene chloride
U159	78–93–3	Methyl ethyl ketone (MEK) (I,T)

U160	1338–23–4	Methyl ethyl ketone peroxide (R,T)
U138	74–88–4	Methyl iodide
U161	108–10–1	Methyl isobutyl ketone (I)
U162	80–62–6	Methyl methacrylate (I,T)
U161	108–10–1	4-Methyl-2-pentanone (I)
U164	56–04–2	Methylthiouracil
U010	50–07–7	Mitomycin C
U059	20830–81–3	5,12-Naphthacenedione, 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-, (8S-cis)-
U167	134–32–7	1-Naphthalenamine
U168	91–59–8	2-Naphthalenamine
U026	494–03–1	Naphthalenamine, N,N′-bis(2-chloroethyl)-
U165	91–20–3	Naphthalene
U047	91–58–7	Naphthalene, 2-chloro-
U166	130–15–4	1,4-Naphthalenedione
U236	72–57–1	2,7-Naphthalenedisulfonic acid, 3,3′-[(3,3′-
		dimethyl[1,1′-biphenyl]-4,4′-diyl)bis(azo)bis[5-amino-4-hydroxy]-, tetrasodium salt
U279	63–25–2	1-Naphthalenol, methylcarbamate.
U166	130–15–4	1,4-Naphthoquinone
U167	134–32–7	alpha-Naphthylamine
U168	91–59–8	beta-Naphthylamine
U217	10102–45–1	Nitric acid, thallium(1+) salt
U169	98–95–3	Nitrobenzene (I,T)
U170	100–02–7	p-Nitrophenol
U171	79–46–9	2-Nitropropane (I,T)
U172	924–16–3	N-Nitrosodi-n-butylamine
U173	1116–54–7	N-Nitrosodiethanolamine
U174	55–18–5	N-Nitrosodiethylamine
U176	759–73–9	N-Nitroso-N-ethylurea
U177	684–93–5	N-Nitroso-N-methylurea
U178	615–53–2	N-Nitroso-N-methylurethane
U179	100–75–4	N-Nitrosopiperidine
U180	930–55–2	N-Nitrosopyrrolidine
U181	99–55–8	5-Nitro-o-toluidine
U193	1120–71–4	1,2-Oxathiolane, 2,2-dioxide
U058	50–18–0	2H-1,3,2-Oxazaphosphorin-2-amine,
		N,N-bis(2-chloroethyl)tetrahydro-, 2-oxide
U115	75–21–8	Oxirane (I,T)
U126	765–34–4	Oxiranecarboxyaldehyde
U041	106–89–8	Oxirane, (chloromethyl)-
U182	123–63–7	Paraldehyde
U183	608–93–5	Pentachlorobenzene

U184	76–01–7	Pentachloroethane
U185	82–68–8	Pentachloronitrobenzene (PCNB)
See F027	87–86–5	Pentachlorophenol
U161	108–10–1	Pentanol, 4-methyl-
U186	504–60–9	1,3-Pentadiene (I)
U187	62–44–2	Phenacetin
U188	108–95–2	Phenol
U048	95–57–8	Phenol, 2-chloro-
U039	59–50–7	Phenol, 4-chloro-3-methyl-
U081	120–83–2	Phenol, 2,4-dichloro-
U082	87–65–0	Phenol, 2,6-dichloro-
U089	56–53–1	Phenol, 4,4′-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-
U101	105–67–9	Phenol, 2,4-dimethyl-
U052	1319–77–3	Phenol, methyl-
U132	70–30–4	Phenol, 2,2′-methylenebis[3,4,6-trichloro-
U411	114–26–1	Phenol, 2-(1-methylethoxy)-, methylcarbamate.
U170	100–02–7	Phenol, 4-nitro-
See F027	87–86–5	Phenol, pentachloro-
See F027	58–90–2	Phenol, 2,3,4,6-tetrachloro-
See F027	95–95–4	Phenol, 2,4,5-trichloro-
See F027	88–06–2	Phenol, 2,4,6-trichloro-
U150	148–82–3	L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-
U145	7446–27–7	Phosphoric acid, lead(2+) salt (2:3)
U087	3288–58–2	Phosphorodithioic acid, O,O-diethyl S-methyl ester
U189	1314–80–3	Phosphorus sulfide (R)
U190	85–44–9	Phthalic anhydride
U191	109–06–8	2-Picoline
U179	100–75–4	Piperidine, 1-nitroso-
U192	23950–58–5	Pronamide
U194	107–10–8	1-Propanamine (I,T)
U111	621–64–7	1-Propanamine, N-nitroso-N-propyl-
U110	142–84–7	1-Propanamine, N-propyl- (I)
U066	96–12–8	Propane, 1,2-dibromo-3-chloro-
U083	78–87–5	Propane, 1,2-dichloro-
U149	109–77–3	Propanedinitrile
U171	79–46–9	Propane, 2-nitro- (I,T)
U027	108–60–1	Propane, 2,2′-oxybis[2-chloro-
U193	1120–71–4	1,3-Propane sultone
See F027	93–72–1	Propanoic acid, 2-(2,4,5-trichlorophenoxy)-
U235	126–72–7	1-Propanol, 2,3-dibromo-, phosphate (3:1)
U140	78–83–1	1-Propanol, 2-methyl- (I,T)
U002	67–64–1	2-Propanone (I)

U007	79–06–1	2-Propenamide
U084	542–75–6	1-Propene, 1,3-dichloro-
U243	1888–71–7	1-Propene, 1,1,2,3,3,3-hexachloro-
U009	107–13–1	2-Propenenitrile
U152	126–98–7	2-Propenenitrile, 2-methyl- (I,T)
U008	79–10–7	2-Propenoic acid (I)
U113	140–88–5	2-Propenoic acid, ethyl ester (I)
U118	97–63–2	2-Propenoic acid, 2-methyl-, ethyl ester
U162	80–62–6	2-Propenoic acid, 2-methyl-, methyl ester (I,T)
U373	122–42–9	Propham.
U411	114–26–1	Propoxur.
U387	52888–80–9	Prosulfocarb.
U194	107–10–8	n-Propylamine (I,T)
U083	78–87–5	Propylene dichloride
U148	123–33–1	3,6-Pyridazinedione, 1,2-dihydro-
U196	110–86–1	Pyridine
U191	109–06–8	Pyridine, 2-methyl-
U237	66–75–1	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-
		chloroethyl)amino]-
U164	56–04–2	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-
U180	930–55–2	Pyrrolidine, 1-nitroso-
U200	50–55–5	Reserpine
U201	108–46–3	Resorcinol
U202	[1]81–07–2	Saccharin, & salts
U203	94–59–7	Safrole
U204	7783–00–8	Selenious acid
U204	7783–00–8	Selenium dioxide
U205	7488–56–4	Selenium sulfide
U205	7488–56–4	Selenium sulfide SeS_2(R,T)
U015	115–02–6	L-Serine, diazoacetate (ester)
See F027	93–72–1	Silvex (2,4,5-TP)
U206	18883–66–4	Streptozotocin
U103	77–78–1	Sulfuric acid, dimethyl ester
U189	1314–80–3	Sulfur phosphide (R)
See F027	93–76–5	2,4,5-T
U207	95–94–3	1,2,4,5-Tetrachlorobenzene
U208	630–20–6	1,1,1,2-Tetrachloroethane
U209	79–34–5	1,1,2,2-Tetrachloroethane
U210	127–18–4	Tetrachloroethylene
See F027	58–90–2	2,3,4,6-Tetrachlorophenol
U213	109–99–9	Tetrahydrofuran (I)
U214	563–68–8	Thallium(I) acetate

U215	6533–73–9	Thallium(I) carbonate
U216	7791–12–0	Thallium(I) chloride
U216	7791–12–0	thallium chloride TlCl
U217	10102–45–1	Thallium(I) nitrate
U218	62–55–5	Thioacetamide
U410	59669–26–0	Thiodicarb.
U153	74–93–1	Thiomethanol (I,T)
U244	137–26–8	Thioperoxydicarbonic diamide $[(H_2N)C(S)]_2S_2$, tetramethyl-
U409	23564–05–8	Thiophanate-methyl.
U219	62–56–6	Thiourea
U244	137–26–8	Thiram
U220	108–88–3	Toluene
U221	25376–45–8	Toluenediamine
U223	26471–62–5	Toluene diisocyanate (R,T)
U328	95–53–4	o-Toluidine
U353	106–49–0	p-Toluidine
U222	636–21–5	o-Toluidine hydrochloride
U389	2303–17–5	Triallate.
U011	61–82–5	1H-1,2,4-Triazol-3-amine
U226	71–55–6	1,1,1-Trichloroethane
U227	79–00–5	1,1,2-Trichloroethane
U228	79–01–6	Trichloroethylene
U121	75–69–4	Trichloromonofluoromethane
See F027	95–95–4	2,4,5-Trichlorophenol
See F027	88–06–2	2,4,6-Trichlorophenol
U404	121–44–8	Triethylamine.
U234	99–35–4	1,3,5-Trinitrobenzene (R,T)
U182	123–63–7	1,3,5-Trioxane, 2,4,6-trimethyl-
U235	126–72–7	Tris(2,3-dibromopropyl) phosphate
U236	72–57–1	Trypan blue
U237	66–75–1	Uracil mustard
U176	759–73–9	Urea, N-ethyl-N-nitroso-
U177	684–93–5	Urea, N-methyl-N-nitroso-
U043	75–01–4	Vinyl chloride
U248	[1]81–81–2	Warfarin, & salts, when present at concentrations of 0.3% or less
U239	1330–20–7	Xylene (I)
U200	50–55–5	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-, methyl ester, (3beta,16beta,17alpha,18beta,20alpha)-
U249	1314–84–7	Zinc phosphide Zn_3P_2, when present at concentrations of 10% or less

[1]CAS Number given for parent compound only.

[45 FR 78529, 78541, Nov. 25, 1980]

Editorial Note: ForFederal Registercitations affecting §261.33, see the List of CFR Sections Affected, which appears in the Finding Aids section of the printed volume and on GPO Access.

Appendix D- Peroxidizable Chemicals

Peroxide forming chemicals have the potential of becoming violently explosive and may require special handling at the time of disposal. Thus, it is very important to consult EHS before placing any peroxide forming chemicals into an SAA. All peroxidizable chemicals, including those listed below, must be dated upon receipt at BSU. Storage and use must be limited in the appropriate time (expiration date), and may required other special conditions, such as temperature control in an explosion-proof refrigerator. Proper storage practices for peroxide forming chemicals include:

- label containers with receipt and expiration dates
- storage in airtight containers in a cool, dark, and dry place
- disposal BEFORE expiration date.

The following is a partial list of peroxide forming chemicals. The best way to know if a chemical is peroxide forming is to consult the MSDS.

Acetaldehyde
Acrylaldedyde
Acrylonitrile
Benzyl alcohol
Butadiene
2-Butanol
Chlorobutadiene (Chloroprene)
Chlorotrifluoroethylene
Crotonaldehyde
Cumene
Cyclohexene
p-Dioxane
Dicyclopentadiene
Diethyl ether
Dioxane
Divinyl acetylene
Ethylbenzene
Ethylene glycol dimethyl ether (glyme)
Isopropyl ether
Methyl acetylene
3-Methyl-1-butanol
Methylcyclopentane
1-Octene
Potassium
1-Pentene
2-Pentanone
3-Pentanone
2-Propanol
Sodium amide
Styrene
Tetrafluoroethylene
Tetrahydrofuran
Tetrahydronaphthalene
Vinyl acetate
Vinyl chloride
Vinyl ether
Vinyl pyridine
Vinylidene chloride

Appendix E - Shock Sensitive Chemicals

Coming Soon

Appendix F- Water Reactive Chemicals

Coming Soon

Appendix G - Pyrophoric Chemicals

Coming Soon

Appendix H - City of Boise NPDES Chemicals of Concern

Coming Soon

Appendix I - F Listed Wastes

The following are hazardous wastes from non-specific sources commonly found at BSU.

F001
The following spent halogenated solvents used in degreasing: Tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F002
The following spent halogenated solvents: Tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1- trichloroethane, chlorobenzene, 1,1,2- trichloro-1,2,2- trifluoroethane, ortho- dichlorobenzene, trichlorofluoromethane, and 1,1,2- trichloroethane; all spent solvent mixtures/ blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F003
The following spent non- halogenated solvents: Xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent non- halogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above non-halogenated solvents, and, a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F004
The following spent non-halogenated solvents: Cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.

F005
The following spent non-halogenated solvents: Toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2- ethoxyethanol, and 2- nitropropane; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.