

CHEMICAL HYGIENE PLAN 2011 - 2012

WHITMAN COLLEGE

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WHITMAN COLLEGE

CHEMICAL HYGIENE PLAN FOR LABORATORIES AND STUDIOS

I. GOAL:

It is the goal of this college to provide a safe environment for its employees and students. It is also our goal to comply with state, federal and local laws and regulations affecting the health and safety of the students and employees. The Chemical Hygiene Plan (CHP) addresses this goal for laboratory environments (296-828 WAC ✕).

Few chemicals are without risk, so general precautions for handling all laboratory chemicals have been developed. Skin contact with chemicals should be avoided at all times. Even for substances of known hazard, special precautions should be employed. In general, one should assume that mixtures of chemicals are more hazardous than their component parts.

The best way to avoid skin contact with chemicals is the use of personal protective equipment (PPE), including; protective gloves, lab coats, and eye protection/splash goggles.

This chemical hygiene plan is intended for use by academic teaching laboratories, studios, laboratory employees, and students.

II. RESPONSIBILITY:

- A. A **Chemical Hygiene Officer** will be designated for the campus. He/she will be responsible for:
1. Implementing and annually updating the chemical hygiene plan.
 2. Monitoring procurement, use and disposal of chemicals in laboratories.
 3. Maintaining appropriate audits of hazardous materials in their department.
 4. Ensuring proper training of employees.
 5. Keeping proper records of training, MSDS and hazardous waste manifests for required duration of time.
 6. Looking for ways to improve the chemical hygiene program.

B. The **Laboratory Supervisor** will be responsible for chemical hygiene within the laboratory. This includes professors in charge of academic labs, research directors in charge of research labs and managers of stockrooms supplying hazardous materials to the department population. Laboratory Supervisors are encouraged to obtain training in first aid and cardiopulmonary resuscitation (CPR).

Responsibilities include:

1. Ensure that workers know and follow the chemical hygiene rules; that protective equipment is available and in working order, and that appropriate training has been provided.
2. Provide regular, formal chemical hygiene and housekeeping inspections, including routine inspections of emergency equipment and taking annual chemical inventories.
3. Ensure that facilities and training are adequate for use of any materials being ordered.
4. Ensure waste disposal guidelines are being met.

C. **The Laboratory Workers (including students!)** are responsible for:

1. Having a good working knowledge of the chemical hygiene plan, and conducting each operation and procedure accordingly.
2. Developing good personal chemical hygiene habits.
3. Making use of personal protective equipment provided, maintaining the PPE in good working order and informing a supervisor when new equipment is needed.

Laboratory Workers are encouraged to obtain training in first aid and cardiopulmonary resuscitation (CPR).

III . INFORMATION AND TRAINING

- A. The Chemical Hygiene Officer will ensure laboratory employees, students or other employee who are likely to come in contact with hazardous chemicals in their work area, are provided with information and training on the hazards of chemicals in their work area and what to do if an accident occurs.
- B. Faculty members are responsible for training their research students.
 - 1. Information to be provided includes:
 - a. The contents of 296-828 WAC “Using Hazardous Chemicals in Laboratories” and where to find a copy.
 - b. Permissible exposure limits found in Chapter 266-841 WAC, Respiratory Hazards
 - c. Any recommended exposure levels for compounds without an exposure limit in the WISHA rules. Examples include:
 - The PEL’s found in the National Institute for Occupational Safety and Health (NIOSH) NIOSH Pocket Guide to Chemical Hazards 2004. Or
 - The American Conference of Governmental Industrial Hygienists (ACGIH) Documentation of the Threshold Limit Values (TLVs) and Biological Exposures Indices (BEIs) 7th Edition.
 - d. Signs and symptoms associated with exposures to hazardous chemicals used in the laboratory.
 - e. Where to find a copy of:
 - i. The chemical hygiene plan
 - ii. Material safety data sheets (MSDSs), including those received from the chemical suppliers.
 - iii. Reference material on the hazards, safe handling, storage, and disposal of hazardous chemicals found in the laboratory.
 - f. This information must be provided at the following times”
 - i. At the time of initial assignment to a work area where hazardous chemicals are present.
 - ii. Prior to situations involving a new exposure to hazardous chemicals.
 - g. Safety rules will be posted in each laboratory.
 - 2. Training consists of, but is not limited to:
 - a. Methods and observations for detecting the presence of release of hazardous substances. Examples of these methods and observations may include:
 - i. Periodic monitoring
 - ii. Continuous monitoring
 - iii. Visual appearance or odor of hazardous chemicals when being released
 - b. The physical and health hazards of chemicals in the laboratory or work area.
 - c. The procedures and measures employees can use to protect themselves from hazardous substances. Examples include:
 - i. Appropriate work practices
 - ii. Emergency procedures
 - iii. Personal protective equipment

- d. The location of MSDSs and the Chemical Hygiene Plan in each laboratory or studio
 - e. How to use an MSDS
 - f. Proper labeling and storage of chemical
3. Training will be provided within 30 days of starting job or changing responsibilities, or prior to situations involving new hazardous chemicals. Refresher training will occur annually.

IV. EXPOSURE EVALUATION

- A. For any exposure of the specific substances listed in Table 2, exposure evaluation procedures found in the chapters regulating those substances will be followed if exposure routinely exceeds the action level (AL) or permissible exposure limit (PEL). Exposure evaluation for all other exposures will be determined by:
 1. Determine if a respiratory hazard exists as described in Chapter 296-841 WAC, Airborne contaminants. Additional requirements relating to respiratory hazards may be found in Chapter 296-842, Respirators, the specific rule for that chemical and the chemical MSDS
- B. Written notification of the results of exposure monitoring must be provided within 5 business days after the results become known. Methods of notification may be made individually or by posting the notification in areas readily accessible to all those affected. Posted notifications may need information that allows those affected to determine which monitoring results apply to them. Notifications may be in any written form including e-mail and may be limited to the required information, such as exposure monitoring results.

V. MEDICAL EVALUATIONS

- A. For any of the specific substances listed in Table 2, medical evaluation procedures found in the chapters regulating those substances must be followed if the exposure routinely exceeds the AL or PEL.
 1. To determine medical evaluation procedures for all other exposures you must:
 - a. Make medical evaluations available when:
 - i. The signs or symptoms associated with a hazardous substance from laboratory exposure develop
 - ii. A situation that could cause a hazardous exposure has occurred, such as a spill, leak or explosion.
 - iii. A medical provider recommends a follow-up evaluation
 - iv. Exposure monitoring for any of the substances found in Table 2 reveals exposures routinely over the AL or in the absence of and AL the PEL.
 - b. Medical evaluations must be provided at reasonable times and places.
 - c. The following information will be provided to the Licensed Health Care Professional (LHCP) before the medical evaluation is performed.
 - i. The name of the hazardous chemicals that person may have been exposed to
 - ii. Any signs or symptoms of exposure noticed

- iii. A description of the conditions under which the exposure occurred
- iv. The exposure monitoring results for the conditions, if available
- d. Obtain the LHCP's written opinion for each medical evaluation that includes the following:
 - i. Recommendations for medical follow-up
 - ii. Any medical conditions found that would increase the risk for impairment from exposure to a hazardous chemical
 - iii. A statement that the employee has been informed of exposure-related medical results and conditions that require further examination or treatment
 - iv. A written opinion that doesn't contain any medical information unrelated to the exposure.

Table 2
WISHA Regulated Hazardous Chemicals
2-Acetylaminofluorene
Acrylonitrile
Alpha- Naphthylamine
4-Aminodiphenyl
Arsenic (inorganic)
Asbestos
Benzene
Beta- Naphthylamine benzidine
Beta- Propiolactone
Bis-Chloromethyl ether
Butadiene
Cadmium
Coke ovens
Cotton dust
1, 2-Dibromo-3-chloropropane
3,3'-Dichlorobenzidine (and its salts)
4-Dimethylaminoazobenzene
Ethylene oxide
Ethyleneimine
Formaldehyde
Ionizing radiation
Lead
Methyl chloromethyl ether
4,4' Methylene bis (2 - chloroaniline)
Methylene chloride
Methylenedianiline
4-Nitrobiphenyl
N- Nitrosodimethylamine
Vinyl chloride

VI. THE LABORATORY FACILITY:

A. The laboratory facility should have:

1. An appropriate general ventilation system with air intakes and exhausts located so as to avoid intake of contaminated air (4-12 room exchanges per hour minimum);
2. Adequate, well-ventilated stockroom/storerooms;
3. Laboratory hoods and sinks;
4. Other safety equipment including eyewash fountains and drench showers;
5. Arrangements for waste disposal;

B. Maintenance:

1. Chemical hygiene related equipment (hoods, incinerator, etc.) should undergo continuing appraisal and be modified if inadequate.
2. All equipment will be checked on a regular basis, for defects. Any problem must be reported immediately to a supervisor and the Safety Office at ext. x5946
 - a. Fume hood face velocity will be 100 fpm minimum, or the hood will be removed from service until repaired. Hood velocity will be checked annually by the chemistry stockroom manager.
 - b. Eyewashes and drench hoses will be checked weekly and showers semi-annually at minimum. Staff responsible for testing include Biology Stockroom Manager for biology (x5306), the Chemistry Stockroom Manager for chemistry (x5272), and the Technical Assistant of Studio Art (x4796)

VII. STANDARD OPERATING PROCEDURES:

A. Do not smell or taste any chemical or unknown substance.

B. Do not eat, drink, smoke, chew gum or apply cosmetics while in the lab.

C. Absolutely NO mouth pipetting or starting of siphons by mouth suction.

D. No horseplay or practical jokes.

E. Lab coats are STRONGLY recommended.

F. No loose or abbreviated clothing worn in labs. No ties, scarves or loose jewelry.

- G. No open toe or perforated shoes.**
- H. Eye protection must be used. Chemistry labs and art etching stations require chemical splash goggles. Biology labs require safety glasses at a minimum. Eyeglasses are NOT acceptable substitutes for safety glasses or chemical splash goggles. According to the National Institute of Occupational Safety and Health (NIOSH), contact lenses are allowed in the lab as long as chemical splash goggles or safety glasses are worn as well.**
- I. Gloves must be worn when specified by the Lab/ Studio Supervisor and should be inspected prior to use. Wash gloves before removing, and replace periodically. One glove will not protect you from every hazard. To select the proper glove material based on the substance you are working with, links to manufacturer's data are available at <http://www.labsafety.com/refinfo/ezfacts/ezf166.htm>, "Chemical Compatibility Guide for Gloves".**
- J. Be aware of any unsafe condition and report promptly. Report any equipment in need of repair, no matter how minor. In the science building consult the Science Technician at x5032.**
- K. Avoid working alone in the laboratory or studio. Check with your department chair for your department's working alone policy. In general, working alone is not allowed unless approved by the professor and security. Departmental working alone policies must be approved by the chemical hygiene officer.**
- L. Know the location of fire and other emergency equipment, and know how to use it.**
- M. Know the location of fire and emergency exits.**
- N. Upon activation of a fire alarm, everyone will evacuate the building.**
- O. Personnel trained in first aid should be available during working hours.**
- P. Long hair must be restrained, and excessive facial hair covered.**
- Q. Laboratories/ studios will only be used by trained and qualified individuals.**
- R. Laboratories/ studios will be limited to 24 students.**
- S. Never leave a flame unattended.**
- T. MSDS will be available to all employees and students at all times, and kept for a period of thirty years.**
- U. No use of headphones unless approved by the professor, laboratory or studio supervisor.**

VIII. GENERAL HOUSEKEEPING:

- A. Keep the work area clean and uncluttered. Clean up work area before beginning and upon completion of the operation or at the end of the day.
- B. Handle and store lab glassware with care. Do not use damaged glassware. Dispose of all damaged or broken glassware in an appropriate receptacle, not into the general trash.
- C. Return all glassware, chemicals and equipment to its proper location. Ongoing operations must be labeled with the contents and the name of a responsible person who can be contacted in case of mishap.
- D. Floors should be cleaned regularly.

IX. LABORATORY VENTILATION SYSTEMS:

- A. Systems should provide a source of air for breathing and for input to local ventilation devices. They should not be relied on for protection from toxic substances released into the laboratory, but they should ensure that laboratory air is continually replaced preventing increase of air concentrations of toxic substances during the working day and should direct airflow into the laboratory from non-laboratory areas and out to the exterior of the building.
- B. Hoods shall be maintained to provide at least 100 feet per minute of airflow with the sash at a height adequate for working comfortably. A minimum of 2.5 linear feet of hood space per person should be provided if most of their time is spent working with chemicals.
- C. Ventilated storage cabinets, canopy hoods or snorkels will be provided as needed.
- D. Alterations to ventilation systems will be made only if thorough testing indicates that worker protection remains inadequate.
- E. Normally adequate ventilation is 4-12 room air changes per hour if the local exhaust systems, such as hoods, are used as the primary method of control.
- F. Use of fume hoods is required if
 1. the TLV or PEL may be exceeded, or if the TLV of a substance is less than 50ppm.
The PEL may be found on the MSDS or in 29CFR1910.100-5000 subpart Z.
 2. the substance is highly flammable (NFPA class IA-boiling point and flashpoint less than 100°C or the red diamond on the HMIS code is a 3 or 4)
 3. the substance is highly reactive (NFPA 3 or 4 in third diamond)

- G. Dust masks protect users from nuisance dust, not chemicals. If working in fume hood is not possible, contact the Chemical Hygiene Officer x5210 if you would like to use a respirator. If you chose to use a dust mask, sign appendix E and send to the Chemical Hygiene Officer .

X. CHEMICAL PROCUREMENT, DISTRIBUTION AND STORAGE:

A. Procurement.

1. Order only as much product as will be consumed within one year.
2. Before a substance is received, information on proper handling, storage, and disposal should be known to those who will be involved.
3. No container should be accepted without an adequate identifying label and MSDS. Preferably, all substances should be received in a central location.
4. Upon receipt add the date to the label, update the inventory and file the MSDS.
5. Chemical donations will only be received with Chemical Hygiene Officer's approval. Material should be in excellent condition, have a specific intended use, and an available MSDS.
6. Certain companies have been notified of people authorized to place orders on behalf of Whitman College. Contact your department chair if you have difficulty ordering chemicals. Students should NEVER place orders on college accounts.
7. Notify the Chemical Hygiene Officer within 30 days if a chemical is ordered that appears on the Department of Homeland Security's Chemical of Interest List (Appendix G).

B. Storage.

1. Toxic substances should be segregated in a well-identified area with local exhaust ventilation.
2. Flammables and combustibles (materials with flashpoints below 93°C or 200°F) should be stored in cabinets designed for said materials.
3. Do not store flammable materials in a household refrigerator – only explosion proof units! Do not store food in laboratory/ studio refrigerators.
4. Acids and oxidizers should not be stored near flammable materials.
5. Chemicals which are highly toxic or other chemicals whose containers have been opened should be in unbreakable secondary containers.
6. Stored chemicals should be examined periodically (at least annually) for proper labeling, replacement, deterioration and container integrity.
7. All chemical storage areas will be securely locked when not in use. Storage, preparation, research labs, and studios are only accessible to authorized persons.
8. All compressed gas cylinders (empty and full) must be chained. Return "empty" cylinders with slight pressure remaining in a timely manner. Do not store flammable gas with oxidizers or any compressed gas cylinder at temperatures above 50°C.

9. Do not store materials in a fume hood unless the hood is dedicated to storage – not operations.
10. All chemicals are stored in tightly sealed, sturdy, appropriate containers.

C. Distribution.

1. Chemicals that must be hand carried should be placed in an outside container or bucket.
2. To avoid exposure to other persons, chemicals should be transported using the least-traveled routes possible.
3. Chemicals will not be distributed to other departments without Chemical Hygiene Officer's approval. Accepting party must have training in the use, storage, and disposal of the material, and the MSDS.
4. If a chemical is transferred to a new container, label with chemical name (not just formula), concentration, date, your name, and hazard information.
5. Compressed gas cylinders will only be moved when the valve cap is in place and chained to a dolly.
6. Shipment of hazardous materials via FedEx or other commercial carriers will only be performed by persons with a current DOT certificate for "offerers of hazardous materials". Certificates must be updated every three years. Call x5272 for a list of current certificate holders.
7. When dispensing flammable liquids from containers 5 gallons or larger, containers must be bonded and grounded to prevent uncontrolled static discharge. Metal drums need to be electrically connected to ground, the new container must be electrically connected to the 5 gallon or larger drum. If you are unsure about the procedure, contact the Chemical Hygiene Officer.

XI. PROPER LABELING

- A. All chemicals will be labeled at a minimum with the concentration, name of the substances as found on the MSDS and words or HMIS codes that identify the hazards. Chemical formula will not be used in lieu of chemical name.
- B. Collection bottles must be labeled as in A, with the addition of a date when the container was completely full, the concentration of each chemical in the bottle.
- C. Hazardous waste bottles will be labeled as in A with the addition of the words "Hazardous Waste". Once labeled in this manner, it must be sent to the satellite accumulation area (Science Vault) within 3 days. Do not leave bottles outside the vault without contacting the Chemical Hygiene Officer.

XII. SPILLS:

A. General Emergency response

1. Alert everyone in the immediate area
 - a) tell them the type, and extent of emergency;
 - b) give instructions for the type of assistance needed.
2. Confine the emergency;
3. Evacuate the area

B. Chemical spills.

DO NOT PULL FIRE ALARM FOR CHEMICAL SPILL

Accidental releases or spills of chemicals must be cleaned up immediately under the supervision of persons who are knowledgeable in the hazards involved and the precautions to be taken. Local fire departments must be notified in advance of the presence of hazardous materials in the lab or storage areas.

1. Confine the spill. Call 911 for Hazmat team if large volume, highly toxic, strong acid or base, or carcinogenic. DO NOT pull the fire alarm! The labs are maintained under negative pressure. Pulling the fire alarm will shut down the air handlers, thus exposing everyone in the building to the fumes from your spill.
2. Use the floor as the reaction vessel for neutralization by creating a second neutralizing area and slowly add the spilled chemical to be neutralized, or;
3. Absorb the chemical and carry out neutralization elsewhere.

C. Medical emergency.

1. REMAIN CALM!
2. Administer first aid to injured persons.
3. Summon medical help immediately. Call 9-1-1.
4. Do not move a severely injured person, unless he or she is in danger of further harm.
5. Keep the injured person warm. If feasible, designate one person to remain with the injured person. The injured person should be within sight, sound or physical contact of that person at all times.
6. If clothing is on fire, knock the person to the floor and roll him or her around to smother the flames or if a safety shower is immediately available, douse the person with water.
7. If chemicals have been spilled on the body, flood the exposed area with sufficient running water from the safety shower and immediately remove any contaminated clothing.
8. If a chemical has entered the eye, immediately wash the eye and the inner surface of the eyelid with plenty of water for 15 minutes. An eyewash fountain should be used if available. Forcibly hold the eyelids open.

XIII. ACCIDENT AND EMERGENCY REPORTING:

Accidents and emergencies must be promptly reported to the Safety Coordinator. Such reports are required by law in many cases and help to uncover hazards that can be corrected. See appendix C for a copy the incident report form. Send the completed report to the Safety Officer.

XIV. WASTE TREATMENT:

Only neutralization, evaporation of water, filtration, separation, carbon adsorption, and solidification are legal methods of waste treatment. Evaporation of solvents other than water is not legal!

XV. WASTE DISPOSAL:

All chemicals must be disposed in accordance to EPA and DOE. Whitman College is currently a conditionally exempt small quantity generator (CESQG) and therefore is limited to producing no more than 100 kg per month of hazardous waste and 1 kg per month of acutely hazardous waste.

- A. Do not accumulate surplus, unnecessary chemicals.
- B. Flammable, combustible, water immiscible, corrosive (pH <6 or >8), oxidizing or toxic substances, or any material on EPA's P or U list will not be poured down the drain or thrown in the trash in any concentration. See appendix D for concentrations of toxic materials that are regulated. EPA's P list is found in Appendix H.
- C. Measures will be taken to keep waste streams separate to control disposal costs. For example, halogenated solvent waste will not be mixed with non-halogenated solvent. If you need help, contact the Chemical Hygiene Officer.
- D. Waste containers will be kept closed unless currently adding material to the container. A funnel resting in a bottle is not considered a closed container.
- E. Waste containers will be properly labeled with material name (not chemical formula or other abbreviation) and hazard.
- F. Leave a 2" headspace in waste container to prevent explosions from over pressurization.
- G. Once full, write the date on the container and move to a designated hazardous waste storage area within three days.
- H. Hazardous waste bottles will be stored in secondary containment to trap spills.
- I. For information regarding disposal of radioactives, contact the Radiation Safety Officer x4798.

J. Compressed gas cylinders will not be placed in the trash unless the valve has been removed.

XVI. GUIDELINES FOR WORKING WITH SPECIFIC CHEMICAL HAZARDS:

1. Allergens and Embryotoxins

A. Allergens (examples: Isocyanates, penicillin, enzymes, aniline)

Wear suitable gloves to prevent hand contact with allergens or substances of unknown allergenic activity.

B. Embryotoxins (examples: Organomercurials, Lead compounds, Formamide)

Women of childbearing age must handle these substances only in a hood whose satisfactory performance has been confirmed, using appropriate protective apparel (especially gloves) to prevent skin contact.

Each use of these materials must be reviewed with the research supervisor and continuing uses must be reviewed annually or whenever a procedural change is made. These substances must be stored, properly labeled, in an adequately ventilated area in an unbreakable secondary container. All incidents of exposure or spills must be reported to supervisors. A qualified physician must be consulted when appropriate.

2. Chemicals of moderate chronic or high acute toxicity (see appendix A for listing)

A. To minimize exposure to these substances, all reasonable precautions must be taken.

B. Store and use these substances only in areas of restricted access with special warning signs.

Always use a properly functioning hood or other containment device for procedures which may result in the generation of aerosols or vapors containing the substance.

C. Always avoid skin contact by use of gloves and long sleeves (and other protective apparel as appropriate). Wash hands and arms immediately after working with these materials.

D. Records of the amounts of these materials on hand, amounts used, and the names of the workers involved must be maintained.

E. The user of these materials must be prepared for spills and accidents. Assure that at least two people are present at all times if a compound in use is highly toxic or of unknown toxicity.

F. Thoroughly decontaminate waste by chemical conversion if possible. If not, package as highly toxic waste and follow procedures in "Hazardous Waste Management" guideline. Students should work closely with the lab instructor or the stockroom manager to ensure proper handling of waste materials.

3. Chemicals of high chronic toxicity, including Carcinogens and suspected Carcinogens (see appendix A and B for lists of these chemicals)

In addition to the guidelines in section 2, above, the following rules apply for work with substances, of known high chronic toxicity (in quantities above a few milligrams to a few grams, depending on the substance).

- A. Conduct all transfers and work with these substances in a "controlled area": a restricted access hood, glove box, or portion of a lab, designated for use of highly toxic substances, for which all people with access are aware of the substances being used and necessary precautions.
- B. Decontaminate vacuum pumps or other contaminated equipment, including glassware, in the hood before removing them from the controlled area. Decontaminate the controlled area before normal work is resumed there.
- C. On leaving a controlled area, remove any protective apparel (placing it in an appropriate, labeled container) and thoroughly wash forearms, face, hands and neck.
- D. Use a wet mop or a vacuum cleaner equipped with a HEPA (high efficiency particulate air) filter instead of dry sweeping if the toxic substance was dry powder.
- E. If using toxicologically significant quantities of such a substance on a regular basis (e.g. 3 times per week), consult a qualified physician concerning desirability of regular medical surveillance. Consult the Personnel Office to obtain the name of a qualified physician specializing in occupational medicine.
- F. Assure that the controlled area is conspicuously marked with warning and restricted access signs and that all containers of these substances are appropriately labeled with identity and warning labels.

REFERENCES

For more information regarding hazardous chemical management see the following:

Carson, H. Tom and Doye D. Cox ed. Hazardous Materials Management, Institute of Hazardous Materials Management: 1990, 90-81996
(available in the Safety office or Chemical Hygiene Officer's office)

Code of Federal Regulations 29CFR1910.1000-1500

Council of State Science Supervisors "**A Guide To Some Hazardous Substances**," U.S. Consumer Product Safety Commission: Washington D.C. 1984
(available in Safety Office)

"Dangerous Waste Regulations" WA State Department of Ecology (WAC173-303)
(available in Chemical Hygiene Officer's office or online at
www.ecy.wa.gov/programs/hwtr/reg_comp_guide/173-303.HTM)

State of WA Department of Labor and Industries 296-802WAC, Medical Records; 296-828WAC, Chemical Hygiene Plan; 296-841WAC, Personal Exposure Limits.

National Research Council. Prudent Practices for Handling Hazardous Chemicals in Laboratories, National Academy Press: Washington D.C. 1981 QD.51/.S92/1995 (available in the Safety Office or Penrose Library)

Piptone, David A. ed. Safe Storage of Laboratory Chemicals, 2nd ed.; Wiley: N.Y. 1991 QD/51/.S22/1991 (available at Penrose Library)

Walla Walla Municipal Code 13.30.070 updated 5/2008

APPENDIX A

HIGHLY TOXIC CHEMICALS

acetyl ferrocene	lithium azide
acetylthiocholine iodide	mercaptoethanol, 2-
acrolein	mercuric acetate (mercury II)
allyl Alcohol	mercuric bromide (mercury II)
aminopyridine	mercuric chloride
amphetamine sulfate (D,L)	mercuric cyanide
arsenic pentoxide	mercuric iodide (Mercury II)
arsenic trioxide	mercuric nitrate
arsenous acid anhydride	mercuric oxide, red
atropine sulfate	mercuric oxide, yellow
bromopropionitrile	mercuric sulfate
brucine	mercuric thiocyanate
butyllithium (in various solvents)	mercuric trifluoroacetate
carbamylcholine chloride	methyl vinyl ketone
chloro-1,2-propanediol,3-	mouse monoclonal
chloroacetaldehyde	mytomycin C
chloroacetophenone	nickel carbonyl
chloroethylether	nicotine
chloromethylmethyl ether	phalloidin
chloropropionitrile (3-)	phenol:chloroform:isoamyl
colchicine	phenyl-2-thiourea, 1-
compound 48/80	phenylthiocarbamide
cuprous cyanide	phorbol dibutyrate (12,13-)
cycloheximide	podophyllotoxin
deoxyepinephrine hydrochloride	potassium cyanide
dichlorotoluene (a,a-)	potassium dichromate
digitonin	propargyl alcohol (propylol)
dimethyl-para-Phenylenediamine	propargyl bromide
dimethyldichlorosilane	propionitrile
dinitrochlorobenzene	semicarbazide hydrochloride
epinephrine (Adrenaline)	sodium azide
epinephrine Bitartrate	sodium cyanide
epinephrine HCl	sodium dichromate
ethylchloroformate	sodium selenite
ethylene chlorohydrin	strychnine sulfate
ethylene oxide	tetraphenylarsonium chloride
ethyleneimine	tetrodotoxin
furan	thallium
hydrazine	thallium carbonate
hydrogen chloride	thallium fluoride
lidocaine HCl (<10ppm)	thallium hydroxide

thallium oxide
thallium thiocyanate
thiophenol (benzenethiol)
thiosemicarbazide
trimethylsiloxy butadiene (2-)
trimethyltin chloride
vanadium compounds
zinc cyanide

APPENDIX B

CARCINOGENS

acetaldehyde	cacodylic Acid, Na Salt
acetamide	cadmium
acrolein	cadmium Acetate
acrylamide	cadmium Bromide
acrylonitrile	cadmium Carbonate
actinomycin (-D)	cadmium Chloride
amaranth	cadmium Iodide
amidodiphenyl, 4-	cadmium Nitrate
amino-1,2,4-triazole,3-	cadmium Oxide
amino-2-naphthol-4-sulfonic	cadmium Sulfate
amino-9-ethylcarbazole (3-)	cadmium Sulfide
aminoazobenzene	carbon Tetrachloride
aminoazotoluene	chloramphenicol
aminoaphthol sulfonic acid	chloramphenicol acetyl
ammonium chromate	chlorazol black E
ammonium dichromate	chlorobutanol
aniline	chloroethylether
aniline hydrochloride	chloroform
anisidine, m-	chloromethyl octyl ether
anisidine, o-	chloromethylmethyl ether
anisidine, p-	chlorophenylenediamine
anthracene	chromic acid
arsenic	chromium
arsenic pentoxide	chromium chloride
arsenic trioxide	chromium nitrate
arsenous acid anhydride	chromium potassium sulfate
benzaldehyde	chromium sulfate
benzene	chromium trichloride
benzidine	chromium trioxide
benzidine dihydrochloride	chrysene
benzyl chloride	cobalt
beryllium sulfate	congo red
bis (trimethylsilyl) acetamide	coumarin
bisdimethylaminobenzophenol	coumarin 440
bleomycin sulfate	coumarin 460
bouin's fluid	coumarin 500
bromochlorethane	cyclophosphamide
bromophenylhydrazine	cytoseal mounting medium
cacodylic acid	Diaminobenzidine 4HCl,3,3'-

Diaminobenzoic Acid, 3,5-
 Diaminodiphenyl
 diaminotoluene
 dianisidine 2HCl, ortho-
 dianisidine, Pract., ortho-
 dibromobenzene
 dibromo-3-chloropropane (1,2-)
 dibromoethane
 dibromo-2-propanol (1,3-)
 dichlorobenzene,o
 dichlorobenzidine and salts
 dichlorodiphenyltrichloroethano
 dichloroethane, 1,1-
 dichloroethane (1,2-)
 dichloroethylene
 dichloromethane
 dichlorophenoxyacetic Acid
 dichlorotoluene (a,a-)
 diethyl sulfate
 diethylenetriaminepentaacetic
 diethylstilbestrol
 dihydrocoumarin
 dimethylaminoazobenzene
 dimethyl Phosphite
 dimethyldichlorosilane
 dimethylformamide
 dimethylhydrazine
 dimethylsulfate
 dinitrofluorobenzene
 dinitrophenylhydrazine,2,4-
 dioxane
 diphenylhydrazine HCl
 diphenyloxazole,2,5-
 estradiol, b-
 estradiol benzoate butyrate
 ethyl Sulfate
 ethylene bromide (practical)
 ethylene oxide
 ethylene sulfide
 ethyleneimine
 evan's Blue
 Fast Garnet GBC Salt
 Fast Red Salt
 formaldehyde
 formalin
 glycidol

hexachlorobutadiene
 hexamethylphosphoramide
 hybaflex
 hydrazine
 hydrazine diHCl
 hydrazine HCl
 hydrazine sulfate
 hydroxyethylethylenediamine
 indole
 iodomethane
 isoleucine,L-
 isonicotinic acid hydrazide
 lead
 lead acetate
 lead chromate
 lead (granular)
 lead pyrophosphate
 leucine B-naphthylamide HCl
 leucine,L-
 methoxyphenylenediamine,o-
 methyl chloromethyl ether
 methyl iodide
 methylcholanthrene,3-
 methylene bisacrylamide
 methylene bis (2-chloroaniline), 4,4-
 methylene chloride
 methylene dianiline
 methyltrifluoromethanesulfonate
 metronidazole
 mytomycin C
 nalidixic Acid
 nalidixic Acid Sodium
 naphthalamine Acetate
 naphthylamine,alpha- and beta-
 naphthylamine HCl,alpha-
 nickel
 nickel acetate
 nickel ammonium sulfate
 nickel carbonate
 nickel carbonyl
 nickel chloride
 nickel nitrate
 nickel sulfate
 nitrilotriacetic acid
 nitrilotriacetic acid diNa Salt
 nitrophenol,para-

nitrobiphenyl	urea
nitrosodimethylamine	urethane
nitrosomethylurea,N-	valine
phenathrene	vinyl bromide and chloride
phenazine	zinc chloride
phenethylamine	
phenol:chloroform:Isoamyl	
phenylhydrazine	
phenylhydrazine HCl	
phorbol 12-myristate	
phorbol dibutyrate (12,13-)	
potassium chromate	
potassium dichromate	
progesterone	
propiolactone	
propyl thiouracil (6-N-)(-2-)	
propylene oxide	
pyridinium chlorochromate	
pyridinium dichromate	
Raney nickel	
reserpine	
saccharin	
semicarbazide hydrochloride	
silanor*-C	
silicon dioxide (Silicon IV)	
sodium arsenate	
sodium arsenite	
sodium chromate	
sodium formaldehyde	
styrene	
tannic acid	
testosterone	
testosterone enanthate	
testosterone propionate	
tetrachloroethane	
tetrachloroethylene	
thioacetamide	
thiourea	
titanium (IV) oxide (TiO ₂)	
tolidine	
tolidine diHCl	
toluidine	
trichloroethylene	
trichlorophenoxyacetic acid	
triethyloxonium	
trimethyl phosphate	

Appendix C

Whitman College
Incident Report

Location: _____

Person's name: _____

Address: _____

Is person an employee of Whitman College? _____ Phone #: _____

If yes, person's job/position: _____

Nature of incident (was person injured?): _____

Where did incident occur (be exact) _____

Time of incident _____ AM / PM

Contributing circumstances (brief explanation of incident): _____

Recommendation to prevent re-occurrence: _____

Witnesses (include address and phone number): _____

Report filed by: _____ Date: _____

Supervisor signature: _____

Send completed form to the Safety Office

Appendix D

Concentrations of Toxic Materials Regulated by The City of Walla Walla

Waste concentrations below these amounts may be sent to the sewer if they don't appear on the list in Appendix A or B.

Chemical	Concentration ppm	% concentration
arsenic	0.043 mg/l	0.0000043%
cadmium	0.028 mg/l	0.0000028%
chromium	5.0 mg/l	0.0005%
copper	0.065 mg/l	0.0000065%
cyanide	0.108 mg/l	0.0000108%
lead	0.135 mg/l	0.0000135%
mercury	0.00045 mg/l	0.00000045%
molybdenum	0.050 mg/l	0.000005%
nickel	0.434 mg/l	0.0000434%
selenium	0.116 mg/l	0.0000116%
silver	0.037 mg/l	0.0000037%
zinc	0.190 mg/l	0.0000190%
oil and grease (petroleum or mineral oil products)	25.00 mg/l	0.0025%

(Walla Walla Municipal Code 13.30.070 updated 5/2008)

Appendix E – Voluntary Respirator Use

OSHA Appendix D to Sec. 1910.134 (Mandatory) Information for Employees Using Respirators When Not Required Under the Standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations.
2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else's respirator.
[63 FR 1152, Jan. 8, 1998; 63 FR 20098, April 23, 1998]

Detach and return to Chemical Hygiene Officer

Name(print)_____

I have read OSHA appendix D and understand that I am using a dust mask voluntarily, not required by my employer. I understand a dust mask will not protect me from chemicals or vapors, only nuisance dust.

Signed:_____ Date:_____

Appendix F - Contact Information

Biology Stockroom Managers	Martha Holt	x5306	Hall of Science, room 313
	Michelle Shafer	x4798	Hall of Science, room 324
Chemical Hygiene Officer	Kendra Golden	x5210	Hall of Science, room 301
Chemistry Stockroom Manager	Kate Rambo	x5272	Hall of Science, room 327
HazMat Team		911	
Poison Control		1-800-222-1222	
Radiation Safety Officer	Kirsten Nicolaysen	x4935	Hall of Science, room 108
	Michelle Shafer (Asst)	x4798	Hall of Science, room 324
Safety Office	Kathy Rogers	x5946	North Hall, room 103
Science Technician	Larry North	x5032	Hall of Science, room 155
Security	Terry Thompson/ Craig McKinnon	x5777	Memorial 117
Technical Assistant of Studio Art	Hillary Loomis	x4796	Fouts Center for Visual Arts Room 125

Appendix G – Department of Homeland Security Chemicals of Interest
(List is not comprehensive, but includes only those chemicals likely to exceed threshold quantity)

Chemical	CAS #
Acetone cyanohydrin, stabilized	75-86-5
Aluminum phosphide	20859-73-8
Arsine	7784-42-1
Arsenic trichloride	7784-34-1
Boron tribromide	10294-33-4
Bromine pentafluoride	7789-30-2
Bromine trifluoride	7787-71-5
Calcium phosphide	1305-99-3
Chlorine pentafluoride	13637-63-3
Chloroacetyl chloride	2625-76-5
[Bis(2-chloroethyl)sulfide]	505-60-2
[Bis(2-chloroethylthioethyl)ether]	63918-89-8
[Bis(2-chloroethyl)methylamine hydrochloride]	55-86-7
[1,2-Bis(2-chloroethylthio)ethane]	3563-36-8
Chlorosulfonic acid	7790-94-5
Cyanogen chloride	506-77-4
Diborane	19287-45-7
N,N-(2-diethylamino)ethanethiol	100-38-9
o,o-Diethyl S-[2-(diethylamino)ethyl] phosphorothiolate	78-53-5
Diethyl methylphosphonite	15715-41-0
N,N-Diethyl phosphoramidic dichloride	1498-54-0
N,N-(2-diisopropylamino)ethanethiol	5842-07-9
N,N-Diisopropyl phosphoramidic dichloride	23306-80-1
N,N-(2-dimethylamino)ethanethiol	108-02-1
N,N-Dimethyl phosphoramidic dichloride	677-43-0
Dinitrogen tetroxide	10544-72-6
N,N-(2-dipropylamino)ethanethiol	5842-06-8
N,N-Dipropyl phosphoramidic dichloride	40881-98-9
[o-Ethyl-o-2-diisopropylaminoethyl methylphosphonite]	57856-11-8
Ethyl phosphonyl difluoride	753-98-0
Ethylphosphonothioic dichloride	993-43-1
Fluorine	7782-41-4
Germanium tetrafluoride	7783-58-6
[Bis(2-chloroethyl)ethylamine]	538-07-8
[Bis(2-chloroethyl)methylamine]	51-75-2
[Tris(2-chloroethyl)amine]	555-77-1
Hydrogen cyanide	74-90-8
Hydrogen selenide	7783-07-5
o-Isopropylmethylphosphonofluoridate	107-44-8
Isopropylphosphonothioic dichloride	1498-60-8
Isopropylphosphonyl difluoride	677-42-9
Lewisite 1 or [2-Chlorovinyl]dichloroarsine	541-25-3

Lewisite 2 or [Bis(2-chlorovinyl)chloroarsine]	40334-69-8
Lewisite 3 or [Tris(2-chlorovinyl)arsine]	40334-70-1
Lithium amide	7782-89-0
Lithium nitride	26134-62-3
Magnesium phosphide	12057-74-8
Methyldichlorosilane	75-54-7
Methylphosphonothioic dichloride	676-98-2
Nitric acid	7697-37-2
Nitric oxide	10102-43-9
Nitrogen trioxide	10544-73-7
Nitrosyl chloride	2696-92-6
Oxygen difluoride	7783-41-7
Phosgene	75-44-5
Phosphine	7803-51-2
Phosphorus oxychloride	10025-87-3
Phosphorus pentasulfide	1314-80-3
Phosphorus trichloride	7719-12-2
[o-Pinacolyl methylphosphonofluoridate]	96-64-0
Potassium phosphide	20770-41-6
Propylphosphonothioic dichloride	2524-01-8
Propylphosphonyl difluoride	690-14-2
Selenium hexafluoride	7783-79-1
Sodium phosphide	12058-85-4
Stibine	7803-52-3
Strontium phosphide	12504-16-4
Sulfur tetrafluoride	7783-60-0
Sulfuryl chloride	7791-25-5
Thiodiglycol	111-48-8
Titanium tetrachloride	7550-45-0
Trichlorosilane	10025-78-2

Appendix H - EPA's P-List
These chemicals cannot go down the drain in ANY quantity.

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 H ₃ AsO ₄
P012	1327-53-3	Arsenic oxide As ₂ O ₃
P011	1303-28-2	Arsenic oxide As ₂ O ₅
P011	1303-28-2	Arsenic pentoxide
P012	1327-53-3	Arsenic trioxide
P038	692-42-2	Arsine, diethyl-
P036	696-28-6	Arsonous dichloride, phenyl-
P054	151-56-4	Aziridine
P067	75-55-8	Aziridine, 2-methyl-
P013	542-62-1	Barium cyanide
P024	106-47-8	Benzenamine, 4-chloro-
P077	100-01-6	Benzenamine, 4-nitro-
P028	100-44-7	Benzene, (chloromethyl)-
P042	51-43-4	1,2-Benzenediol, 4-[1-hydroxy-2-(methylamino)ethyl]-, (R)-
P046	122-09-8	Benzenethanamine, 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
P021	592-01-8	Calcium cyanide $\text{Ca}(\text{CN})_2$
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 $\text{Cu}(\text{CN})$
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 $(\text{CN})\text{Cl}$
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	¹ 72–20–8	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha,2beta,2abeta,3alpha,6alpha,6abeta,7beta, 7aalpha)-, & metabolites
P044	60–51–5	Dimethoate
P046	122–09–8	alpha,alpha-Dimethylphenethylamine
P191	644–64–4	Dimetilan.
P047	¹ 534–52–1	4,6-Dinitro-o-cresol, & salts
P048	51–28–5	2,4-Dinitrophenol
P020	88–85–7	Dinoseb
P085	152–16–9	Diphosphoramidate, 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 $\square$)-,
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 $\square$ -[3-[[(methylamino)-carbonyl]oxy]phenyl]-, monohydrochloride.
P197	17702–57–7	Methanimidamide, N,N-dimethyl-N $\square$ -[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-Methylactonitrile
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	¹ 54–11–5	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	Octamethylpyrophosphoramidate
P087	20816-12-0	Osmium oxide OsO ₄ , (T-4)-
P087	20816-12-0	Osmium tetroxide
P088	145-73-3	7-Oxabicyclo[2.2.1]heptane-2,3-dicarboxylic acid
P194	23135-22-0	Oxamyl.
P089	56-38-2	Parathion
P034	131-89-5	Phenol, 2-cyclohexyl-4,6-dinitro-
P048	51-28-5	Phenol, 2,4-dinitro-
P047	¹ 534-52-1	Phenol, 2-methyl-4,6-dinitro-, & salts
P020	88-85-7	Phenol, 2-(1-methylpropyl)-4,6-dinitro-
P009	131-74-8	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P128	315-18-4	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester).
P199	2032-65-7	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate
P202	64-00-6	Phenol, 3-(1-methylethyl)-, methyl carbamate.
P201	2631-37-0	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate.
P092	62-38-4	Phenylmercury acetate
P093	103-85-5	Phenylthiourea
P094	298-02-2	Phorate
P095	75-44-5	Phosgene
P096	7803-51-2	Phosphine
P041	311-45-5	Phosphoric acid, diethyl 4-nitrophenyl ester
P039	298-04-4	Phosphorodithioic acid, O,O-diethyl S-[2-(ethylthio)ethyl] ester
P094	298-02-2	Phosphorodithioic acid, O,O-diethyl S-[(ethylthio)methyl] ester
P044	60-51-5	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)-2-oxoethyl] ester
P043	55-91-4	Phosphorofluoridic acid, bis(1-methylethyl) ester
P089	56-38-2	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester
P040	297-97-2	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
P097	52-85-7	Phosphorothioic acid, O-[4-[(dimethylamino)sulfonyl]phenyl] O,O-dimethyl ester
P071	298-00-0	Phosphorothioic acid, O,O,-dimethyl O-(4-nitrophenyl) ester
P204	57-47-6	Physostigmine.
P188	57-64-7	Physostigmine salicylate.
P110	78-00-2	Plumbane, tetraethyl-
P098	151-50-8	Potassium cyanide

P098	151–50–8	Potassium cyanide K(CN)
P099	506–61–6	Potassium silver cyanide
P201	2631–37–0	Promecarb
P070	116–06–3	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl]oxime
P203	1646–88–4	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O-[(methylamino)carbonyl] oxime.
P101	107–12–0	Propanenitrile
P027	542–76–7	Propanenitrile, 3-chloro-
P069	75–86–5	Propanenitrile, 2-hydroxy-2-methyl-
P081	55–63–0	1,2,3-Propanetriol, trinitrate (R)
P017	598–31–2	2-Propanone, 1-bromo-
P102	107–19–7	Propargyl alcohol
P003	107–02–8	2-Propenal
P005	107–18–6	2-Propen-1-ol
P067	75–55–8	1,2-Propylenimine
P102	107–19–7	2-Propyn-1-ol
P008	504–24–5	4-Pyridinamine
P075	¹ 54–11–5	Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)-, & salts
P204	57–47–6	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)-.
P114	12039–52–0	Selenious acid, dithallium(1+) salt
P103	630–10–4	Selenourea
P104	506–64–9	Silver cyanide
P104	506–64–9	Silver cyanide Ag(CN)
P105	26628–22–8	Sodium azide
P106	143–33–9	Sodium cyanide
P106	143–33–9	Sodium cyanide Na(CN)
P108	¹ 57–24–9	Strychnidin-10-one, & salts
P018	357–57–3	Strychnidin-10-one, 2,3-dimethoxy-
P108	¹ 57–24–9	Strychnine, & salts
P115	7446–18–6	Sulfuric acid, dithallium(1+) salt
P109	3689–24–5	Tetraethyldithiopyrophosphate
P110	78–00–2	Tetraethyl lead
P111	107–49–3	Tetraethyl pyrophosphate
P112	509–14–8	Tetranitromethane (R)
P062	757–58–4	Tetraphosphoric acid, hexaethyl ester
P113	1314–32–5	Thallic oxide
P113	1314–32–5	Thallium oxide Tl ₂ O 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 ₂ N)C(S)] ₂ NH
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 ₂ O ₅
P120	1314-62-1	Vanadium pentoxide
P084	4549-40-0	Vinylamine, N-methyl-N-nitroso-
P001	¹ 81-81-2	Warfarin, & salts, when present at concentrations greater than 0.3%
P205	137-30-4	Zinc, bis(dimethylcarbamodithioato-S,S□)-,
P121	557-21-1	Zinc cyanide
P121	557-21-1	Zinc cyanide Zn(CN) ₂
P122	1314-84-7	Zinc phosphide Zn ₃ P ₂ , when present at concentrations greater than 10% (R,T)
P205	137-30-4	Ziram.