



## **HAZARDOUS WASTE GENERATED AT HOSPITALS, MEDICAL CLINICS, DOCTORS, DENTISTS, VETERINARIANS, AND OTHER HEALTHCARE FACILITIES**

Hospitals, medical clinics, doctors, dentists, veterinarians, and other healthcare facilities can potentially generate hazardous waste when they dispose of expired or unused regulated pharmaceutical waste, contaminated containers with acute hazardous waste, used solvents generated in laboratories, etc. This document intends to assist health care facilities identify hazardous waste generated at their sites and to comply with local, State, and federal requirements.

Hazardous waste is a waste that is potentially harmful to human health or the environment if not managed in accordance with regulations. In regulatory terms, a hazardous waste is a waste that appears on one of the four hazardous wastes lists (the F-list, K-list, P-list, or U-list) or that exhibits one of the four characteristics of a hazardous waste (ignitability, corrosivity, reactivity, or toxicity). These include both federal (RCRA) and California-only (non-RCRA) hazardous waste.

Pharmaceuticals are any prescription or over-the counter human or veterinary drugs. Hazardous waste pharmaceuticals include only the waste that is federally regulated. All other drugs are non-RCRA and must be handled and disposed of as medical waste according to the requirements of the California Medical Waste Management Act.

### **HOW TO DETERMINE IF A FACILITY GENERATES HAZARODUS WASTE OR NOT?**

The generator of the waste is responsible for determining if the waste is hazardous and if there are any special requirements regarding proper disposal. The generator must use the knowledge of the composition of the waste, which is usually found on the specifications of the product or the safety data sheet (SDS) of the chemicals; otherwise, the waste needs to be tested. We recommend hospitals, medical clinics, doctors, dentists, veterinarians, and similar facilities answer the following questions to start the waste determination process:

#### **1. Is the waste “RCRA-regulated pharmaceutical waste”?**

This is one of the most common hazardous wastes generated at medical facilities. California regulations state that any waste where a RCRA-listed material is the sole active ingredient must be managed as a RCRA hazardous waste. There is also a group of RCRA-listed materials (the P-list), that require empty containers that held the material to be managed as hazardous waste, as well. In addition to listed hazardous waste, a waste pharmaceutical can also be a RCRA hazardous waste if it exhibits any of the characteristics of ignitability, corrosivity, reactivity, or toxicity. See **Appendix A** for a list of the most common pharmaceutical RCRA hazardous waste. Other types of pharmaceutical waste must be managed as medical waste, rather than hazardous waste.

#### **2. Is the non-pharmaceutical waste a listed hazardous waste?**

Any non-pharmaceutical waste that is listed in the regulations must be managed as hazardous waste. Used oil from servicing equipment, solvent-based cleaners, or oil-based paint are examples of other types of hazardous waste that must be specially managed. These wastes are considered non-RCRA



hazardous waste. A link to a list of presumed hazardous waste can be found on our website or in the California Code of Regulations, Title 22, Chapter 11, Appendix X.

**3. Does the Safety Data Sheet (SDS) indicate the material has hazardous properties?**

In addition to listed waste, if the waste displays a hazardous characteristic (ignitability, corrosivity, reactivity or toxicity) it must be managed as hazardous waste. In general, if the hazard category rating on the SDS is 2 or greater, the material is likely a hazardous waste. However, some hazardous materials will have lower ratings, so this is just a general rule. If you have any questions, you should contact our office.

**If you answered yes to any of these three questions, you are required to have a hazardous waste generator permit issued by San Mateo County Environmental Health Services.** This is different than the medical waste permit. Our office is the Certified Unified Program Agency (CUPA) for San Mateo County and we administer the hazardous waste generator program on behalf of the State. **Failure to notify us and possess a valid Hazardous Waste Generator permit may subject you to a penalty equal to three times the annual permit fee.** Complete the Permit Registration Form found at [smchealth.org/cupaforms](http://smchealth.org/cupaforms) and send it to [envhealth@smcgov.org](mailto:envhealth@smcgov.org).

Facilities that generate hazardous waste on a routine basis will be registered, receive a permit, and be inspected to verify compliance with state and federal hazardous waste laws and regulations. Annual fees will be determined based on quantity of waste generated.

**What about light bulbs, batteries, electronic devices or CRTs?**

Items like these contain hazardous components, but California law provides reduced management requirements, including proper labeling, employee training, and documented disposal to an approved facility. If these reduced requirements are met, these items are not regulated as hazardous waste.

## WASTE MINIMIZATION

Not only is it a good idea, but it is a legal requirement, that facilities implement practices to minimize the generation of hazardous waste. For example:

- Ensuring that only RCRA-regulated pharmaceuticals are disposed as hazardous waste (the majority of pharmaceuticals can be disposed as medical waste – saving you disposal costs and saving capacity at RCRA disposal facilities)
- Preventing spills
- Properly managing universal waste, and not accepting any pharmaceutical waste from the public. Instead, refer the public to one of the many drop-off locations around the County.

**For additional guidance, contact the CUPA Inspector for your jurisdiction.**  
**Click on the link for a complete list of inspectors: [smchealth.org/cupainspectors](http://smchealth.org/cupainspectors).**



**APPENDIX A**

**EXAMPLES OF PHARMACEUTICAL HAZARDOUS WASTE**

<b>CHARACTERISTIC WASTE CODES</b>			<b>LISTED WASTE CODES</b>		
<b>Ignitable</b>			<b>P-Listed Waste</b>		
D001	Aqueous drug formulation containing $\geq 24\%$ /vol.	Erythromycin gel 2%, Texacort solution 1%, Taxol injection	<p>The P-list identifies acute hazardous wastes from <a href="#">discarded commercial chemical products</a>. They must contain the constituent as the sole active ingredient and be unused or discarded. The P-list identifies acute hazardous wastes from <a href="#">discarded commercial chemical products</a>. They must contain the constituent as the sole active ingredient and be unused or discarded. Acute hazardous wastes from discarded commercial chemical products. They must contain the constituent as the sole active ingredient and be unused or discarded.</p>		
	Liquid drug formulations, with a flashpoint $< 140^\circ$ F or $60^\circ$ C, except aqueous solutions containing $< 24\%$ alcohol.	Flexible collodion - Flashpoint= $45^\circ$ C			
	Oxidizers	Amyl nitrite inhalers, silver nitrate applicators			
	Flammable aerosol propellants meeting the DOT definition of compressed gas.	Primatine aerosol			
<b>Corrosive</b>			P001	Warfarin and salts ( $\geq 0.3\%$ )	Coumadin, Warfarin
D002	Corrosive	$2 \leq \text{pH} \leq 12.5$	P012	Arsenic trioxide	Trisenox
<b>Reactive</b>			P042	Epinephrine	Adrenalin, EpiPen, Eppy/N, Epifrin, Epinal, Anaphalaxis kit, epinephrine (inhalants, injectibles, kits), Racepinephrine, Racord, Primatine aerosol inhaler
D003	Reactive	Reactive wastes are unstable under "normal" conditions. They can cause explosions, toxic fumes, gases, or vapors when heated, compressed, or mixed with water.	P046	Phentermine	Phentermine (CIV)
<b>Toxic</b>			P075	Nicotine and salts	Nicotine patches, Habitrol, Nicoderm, Nicorette, Nicotrol, Tetrahyronicotyryne
D004	Arsenic	Any P012 listed waste, arsenic trioxide (also P012), Carbasone, Glycobiarosol, Thiactarsamide	P188	Physostigmine salicylate	Also known as Eserine salicylate
D005	Barium	Barium sulfate (used in radiology), barium sulfidel, barium hydroxide, barium chloride	P204	Physostigmine	Also known as Eserine
D007	Chromium	Multiple mineral preparations, chromium, chromium trioxide, multiple trace element (also D010)	<b>U-Listed Waste</b>		
D009	Mercury	Any U151 listed waste. Any drug with thimerosal or phenylmercuric acetate (vaccines, eye drops, nasal spray, etc.).	Hazardous wastes from discarded commercial chemical products. They must contain the constituent as the sole active ingredient and be unused or discarded.		
D010	Selenium	Any U205 listed waste, dandruff shampoo, multiple mineral preparations.	U010	Mitomycin C	Mitomycin C, Mutamycin, Mutamycin VHA Plus
D011	Silver	Silver sulfadiazine cream, silver nitrate (also D001), Silvadene, Argyrol S.S., Arzol silver nitrate (also D001)	U015	Azaserine	Chemotherapy for leukemia
D013	Lindane	Treatment of lice, scabies	U034	Chloral / Chloral hydrate	Chloral hydrate (CIV)
D024	M-cresol	Insulin with cresol	U035	Chlorambucil	Leukeran
			U044	Chloroform	Chloroform, anesthetic
			U058	Cyclophosphamide	CTX, Cytoxan injection, Lycophilized/VHA Plus, Neosar, Procytox
			U059	Daunomycin	Daunorubicin, Cerubidin, DaunoXome, Rubidomycin, Liposomal, Idarubicin/Idamycin, Daunomycin
			U075	Dichlorodifluoro-methane	Dichlorodifluoromethane
			U089	Diethylstilbesterol	Diethylstilbestrol, DES (synthetic estrogen), Stilphostrol
			U121	Trichloromonoflu-romethane	Trichlorofluoromethane
			U122	Formaldehyde	Formaldehyde, disinfectant
			U129	Lindane	G-Well shampoo, Kwell shampoo
			U132	Hexachlorophene	PhisoHex disinfectant
			U150	Melphalan	Alkeran, L-PAM, Melphalan
			U151	Mercury	Mercurochrome, mercury iodide, mercury chloride, mercury sulfate
			U182	Paraldehyde	Paral, Paraldehyde (CIV)
			U187	Phenacetin	Acetophenetidin (typically veterinary)



SAN MATEO COUNTY HEALTH  
**ENVIRONMENTAL  
HEALTH SERVICES**

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	U188	Phenol	Phenol, liquified phenol
	U200	Reserpine	Resperine
	U201	Resorcinol	Resorcinol
	U205	Selenium sulfide	Exsel shampoo, selenium sulfide, Selsun
	U206	Streptozotocin	Streptozotocin, Streptozocin, Zanosar
	U248	Warfarin and salts (≤ 0.3 %)	Warfarin