

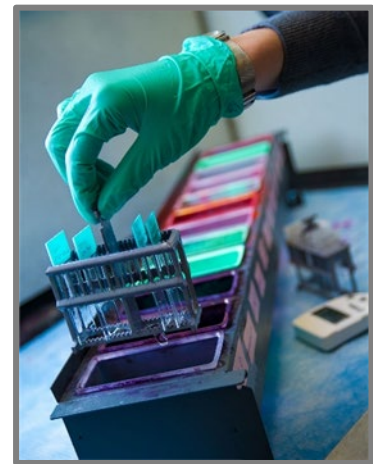


County of San Diego

DEPARTMENT OF ENVIRONMENTAL HEALTH AND QUALITY
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Staining Waste Guidance

Many human and animal healthcare facilities in San Diego County conduct microbiological staining for patient diagnosis or research. Several of the reagents used in these processes may be classified as hazardous waste and must be managed pursuant to State and Federal regulations. The purpose of this document is to provide guidance on the proper identification, management, disposal, and permitting of staining wastes that are classified as hazardous waste.



BACKGROUND

Microbiological staining is an important technique used to better visualize cells, including bacteria and cellular components. Common facilities that conduct staining are hospitals, medical clinics, veterinary clinics and hospitals, diagnostic and histopathology laboratories, and research laboratories such as those found at universities and the biotech industry.

GHS PICTOGRAMS

Health Hazard • Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	Flame • Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	Exclamation Mark • Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder • Gases Under Pressure	Corrosion • Skin Corrosion / Burns • Eye Damage • Corrosive to Metals	Exploding Bomb • Explosives • Self-Reactives • Organic Peroxides
Flame Over Circle • Oxidizers	Environment • Aquatic Toxicity	Skull and Crossbones • Acute Toxicity (fatal or toxic)

HOW TO DETERMINE IF WASTE IS HAZARDOUS

- Review the chemical description on the reagent label and the Safety Data Sheet
- Pay special attention if you see:
 - ✓ The signal words: “DANGER” or “WARNING”
 - ✓ Any pictogram indicating a chemical hazard, such as a flame for flammables or an exclamation mark for skin sensitizers. See pictograms to the left

The reagents used in staining procedures *must* be managed as a hazardous waste if any of the following characteristics apply:

- **Ignitable:** flashpoint < 140°F or 60°C
- **Corrosive:** pH ≤2 or ≥12.5
- **Toxic:** defined in the California Code of Regulations §66261.24. See Table 1.1 for examples.
- **Reactive:** Reactive wastes are unstable under normal conditions; or can cause explosions or release toxic fumes, gases, or vapors when heated, compressed, or mixed with water.

See additional guidance on [conducting hazardous waste determination](#)

REQUIREMENTS FOR FACILITIES GENERATING HAZARDOUS WASTES:

Facilities that generate a hazardous waste are regulated at the local level by Certified Unified Program Agencies (CUPAs). In San Diego County, the Department of Environmental Health and Quality - [Hazardous Materials Division](#) (HMD) is the CUPA. A hazardous waste generator must comply with the laws and regulations that govern hazardous waste. In general, an operator must:

- [Determine whether a waste is hazardous](#) (22 CCR 66262.11)
- Obtain an [EPA ID number](#) from the Department of Toxic Substances Control (DTSC) or from USEPA (22 CCR 66262.12)
- Obtain the [Unified Program Facility Permit](#) from the County of San Diego – HMD.
- Properly manage hazardous waste (See next section "How to manage hazardous waste?")
- Do not exceed waste accumulation time limits (22 CCR 66262.34 et seq.)
- Maintain disposal receipts for 3 years
- Maintain training records for 3 years (if applicable) (22 CCR 66262.40)
- Arrange for transportation of hazardous waste by a [registered transporter](#) under a uniform hazardous waste manifest (22 CCR 66262.20 et seq.)
- Eliminate, reduce, and recycle waste where possible (22 CCR 67100.1 et seq.)

The above is a condensed list of the **basic requirements** that apply to hazardous waste generators pursuant to State law and should not be assumed to be complete.

HAZARDOUS WASTE

STATE AND FEDERAL LAW PROHIBITS IMPROPER DISPOSAL

IF FOUND, CONTACT THE NEAREST POLICE, OR PUBLIC SAFETY AUTHORITY, OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY OR THE CALIFORNIA DEPARTMENT OF TOXIC SUBSTANCES CONTROL.

GENERATOR INFORMATION:

NAME _____

ADDRESS _____ PHONE _____

CITY _____ STATE _____ ZIP _____

EPA IDENTIFICATION NO. / MANIFEST TRACKING NO. _____

EPA WASTE NO. _____ CA WASTE NO. _____ ACCUMULATION START DATE _____

CONTENTS, COMPOSITION: _____

PHYSICAL STATE: _____ HAZARDOUS PROPERTIES: FLAMMABLE TOXIC
 SOLID LIQUID CORROSIVE REACTIVITY OTHER _____

D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

HANDLE WITH CARE!

HOW TO MANAGE HAZARDOUS WASTE:

- Store in closed containers except when adding/removing waste
- Clearly label the container with:
 - ✓ the words, "Hazardous Waste"
 - ✓ date waste accumulation began
 - ✓ waste composition, physical state, and hazardous properties
 - ✓ name and address of the facility
- Schedule to have the hazardous waste transported by a registered hazardous waste transporter. A database of [registered transporters](#) is available on the DTSC website
- Have the hazardous waste transported for disposal within required time frame
- Other [generator](#) requirements apply

***** BE ADVISED***** Hazardous staining waste must not be disposed of to the sewer. Disposing any waste that is flammable, corrosive, toxic, reactive, or listed as hazardous waste constitutes unauthorized disposal and may result in significant penalties. Hazardous staining waste must be captured in a container to prevent a release and must be properly managed. Staining rinsate may also be hazardous and requires a hazardous waste determination. When in doubt, analytical testing helps! See Helpful Websites section for a link to [some certified labs](#).

For more information about permitting, hazardous waste, regulatory compliance, or other Unified Programs, please refer to the [County of San Diego HMD](#) website or contact the HMD Duty Desk at (858) 505- 6880. [California Hazardous Waste Regulations](#) can be found on CalEPA's [DTSC](#) website.

Table 1.1 Hazard Characteristics for Common Staining Reagents

Reagent	Possible Methods	Ignitable	Corrosive	Toxic	Notes
Diff Quick Fixative	veterinary cytology	X		X	Flammable and toxic
Crystal Violet	microbiology; fingerprint analysis			X	Very toxic to aquatic life; long-lasting effect to environment
Eosin Y	histology	X		X	Toxic to aquatic life
Coomassie Blue	gel electrophoresis			X	Toxic to aquatic life
Ethidium Bromide	gel electrophoresis			X	Acutely toxic
Iodine	microbiology			X	Very toxic to aquatic life
Malachite Green	microbiology			X	Toxic to aquatic life; long-lasting effect to environment
Methylene Blue	various			X	Toxic to aquatic life
Ethanol	various	X			
Isopropanol	various	X			
Methanol	various	X			
Acetone	various	X			
Sulfuric Acid	various		X		
Hydrochloric Acid	various		X		

HELPFUL WEBSITES:

- Gyure, Ruth A. 2010. An Eco-friendly, Scaled-down Gram Stain Protocol. *J. Microbiol Biol Educ*, volume 11(1). Pages 60-61. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3577235/>
- Conducting Waste Determinations:
 - <https://www.sandiegocounty.gov/content/sdc/deh/hazmat/hazwaste/hazwastedetermination.html>
 - <https://dtsc.ca.gov/defining-hazardous-waste/>
- List of Local Certified Labs for Hazardous Waste Testing:
 - <https://waterboards.maps.arcgis.com/apps/webappviewer/index.html?id=bd0bd8b42b1944058244337bd2a4ebfa>
- HMD Permit Application: [https://www.sandiegocounty.gov/content/dam/sdc/deh/hmd/pdf/HMF-1000%20CERS%20Application%20Form%20\(07-21\).pdf](https://www.sandiegocounty.gov/content/dam/sdc/deh/hmd/pdf/HMF-1000%20CERS%20Application%20Form%20(07-21).pdf)
- EPA ID Number Application: <https://dtsc.ca.gov/apply-for-hazardous-waste-epa-id-number/>
- County of San Diego Hazardous Materials Division website: <https://www.sandiegocounty.gov/content/sdc/deh/hazmat.html>
- State of California – Department of Toxic Substances Control – Hazardous Waste Management: <https://dtsc.ca.gov/managing-hazardous-waste/>
- California Hazardous Waste Regulations: <http://www.dtsc.ca.gov/LawsRegsPolicies/Title22/index.cfm>