
BEST MANAGEMENT PRACTICES
FOR DENTAL OFFICES

CLEAN

MAKING IT HAPPEN

WATER

INDUSTRIAL WASTE MANAGEMENT DIVISION
OF THE CITY OF LOS ANGELES

BEST MANAGEMENT PRACTICES

Dental offices use and generate certain substances that when improperly discharged to the sewer system may end up in our oceans, bays, and other receiving waters and may cause harm to the environment. Although dental offices deal with small amounts of pollutants and toxic wastes, the cumulative effects of the materials can be significant.

THE CALIFORNIA DENTAL ASSOCIATION (CDA) AND THE CITY OF LOS ANGELES URGE YOU TO JOIN OTHER DENTAL PROFESSIONALS TO MINIMIZE THE RELEASE OF POLLUTANTS INTO THE ENVIRONMENT.



The Industrial Waste Management Division of the City of Los Angeles, Bureau of Sanitation has

developed this guide to assist you in the proper management of wastes created in your dental practice. The practices described in this guide are intended to help you reduce the amount of pollutants discharged to the sewer system, help keep your facility in compliance with federal, state and local regulations and may also help reduce your raw material and waste management costs.

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FOR DENTAL OFFICES

POLLUTION PREVENTION

Pollution prevention includes practices that reduce or eliminate the creation of wastes. These practices may include:

- employee training
- improved housekeeping practices
- product substitution, where appropriate

TRAINING

Train employees regarding the importance of pollution prevention on the job.

Train employees on proper hazardous material and waste handling, storage, and disposal in accordance with federal and state regulations. Provide retraining when there is a change in procedures, or process.

Develop, and keep current, a Spill Response Plan. Make the Plan available to employees at all times.

Employees should read and be aware of the Material Safety Data Sheets (MSDS). Chemical manufacturers and suppliers provide these data sheets to outline the associated chemical and safety information regarding their products including emergency response and procedures.

HOUSEKEEPING

Inspect containers of potentially hazardous materials and wastes regularly to spot damaged or leaking containers. Repackage or place damaged containers in secondary containment areas immediately.

Store hazardous, recyclable and non-hazardous wastes in separate and appropriate containers.

Know and follow the requirements of your hauler or recycler for each type of waste.

NEVER DOWN THE DRAIN

Never Rinse Amalgam Traps over Drains or Discard in Garbage

Never Discharge Mercury or Amalgam Waste down the Sewer

The American Dental Association recommends that “...dentists eliminate the use of bulk dental amalgam mercury and bulk amalgam alloy and that they use only precapsulated alloy in their practices...”

Never Discharge Untreated Fixer into the Drain

Whether treated on-site or off-site, fixer is easily and economically recyclable and recycling is the preferred method of management.

RECYCLE/RECLAIM

Mercury from amalgam and silver from used x-ray fixer can be reclaimed. In addition to the environmental benefits, reclaiming these resources can also reduce the regulatory requirements and costs associated with management and disposal.

Amalgam that will not be recycled/reclaimed must be managed as hazardous waste.

PRODUCT SUBSTITUTION

Product substitution practices include using alternative products with less or non-hazardous components or using technologies that generate less toxic or less volume of waste. For example, you may wish to consider alternatives such as:

- precapsulated amalgam instead of bulk mercury
- digital radiography
- non-hazardous biodegradable detergents for clean-up
- non-chromium containing x-ray developer system cleaners

However, when making any changes, carefully evaluate the new product, material or technology for its effectiveness, durability, ease of use, and potential to contain other toxic or hazardous chemicals. Sources of information for evaluating products or technology include CDA, vendors, regulatory agencies, and other dental offices who have used such products.

AMALGAM WASTES

Amalgam waste should never be discharged to the sewer or discarded with garbage or medical waste. Disposal of amalgam by sewer discharge, or with medical waste or garbage can potentially release the bound mercury into the environment. Mercury that is bound in the amalgam can be recovered. For a list of businesses providing amalgam waste management and recycling services see the enclosed waste haulers/recyclers list, or contact IWMD at (323) 342-6200.

Recommended Management Practices for Amalgam Wastes:

- Limit the amount of amalgam generated to the amount needed for each restoration, i.e., don't mix two spills when one spill would suffice.
- Retrieve excess amalgam during placement with gauze. Amalgam particles to be recycled should be separated from the gauze and gauze placed in solid waste.
- Collect and store dental amalgam scrap in a designated, airtight container. Amalgam that is designated for recycling should be labeled as "Dental Amalgam: Recyclable Metal," with the name, address and phone number of your office and the date on which you first started collecting material in the container. Amalgam that will not be recycled must be managed as hazardous waste.

- Keep a log of your generation and disposal of scrap amalgam; inspectors may ask to see this to verify that your office is properly managing it correctly. A generation and disposal log is a record of what you placed in the amalgam container, when it was placed in the container, and when the container was picked up by or sent to a recycler or hazardous waste hauler.
- Check with your amalgam recycler for any additional requirements. Some recyclers do not accept contact amalgam (amalgam that has been in the patient's mouth); others may require disinfecting of the amalgam waste. Each recycler has very specific packaging requirements.
- In the past, dental amalgam scrap may have been kept under photographic fixer, water, or other liquid. If you should encounter amalgam stored in this manner, do not under any circumstances decant the liquid down the drain. Contact your amalgam recycler or hazardous waste hauler for more information on how to dispose of this material properly.
- Collect and store the entire contents of broken or unusable capsules with your scrap amalgam. Depending on the requirement of your amalgam recycler, the capsules themselves may also be stored and recycled with the scrap amalgam. Empty dental amalgam capsules containing no visible materials can be disposed of as a non-hazardous waste.

AMALGAM TRAPS

- Disposable amalgam traps are preferable to reusable traps because of the difficulty in effectively removing amalgam particles from the trap without discharging them to the sewer or garbage. Disposable traps should be changed weekly or more frequently if needed, or as recommended by the manufacturer of your equipment. CDA recommends off-site recycling as a general practice.
- Only traps on chairs used for amalgam placement or removal need special handling. Place traps from chairs not used for amalgam procedures in the regular solid waste.
- The use of reusable chair-side amalgam traps is not recommended. However, if reusable amalgam traps are used, please take the following steps:
 - 1) Disinfect the traps in a minimum amount of disinfectant.
 - 2) Remove visible scrap amalgam from the reusable amalgam trap and store in an airtight container per licensed recycler or waste hauler directions.
 - 3) Use appropriate protective equipment when handling amalgam.

BULK MERCURY

To control or eliminate bulk mercury in your office:

- Use precapsulated dental amalgam.
- Use the proper work area designed to provide secondary containment and follow a written mercury spill clean-up procedure.
- Maintain a mercury clean-up kit in your office to manage accidental spills that may occur regardless of the delivery form of the mercury.
- React small amounts of unused elemental mercury with silver alloy to form scrap amalgam for recycling.
- Elemental mercury from spills and absorbent from the clean-up of mercury spills are accepted by some mercury recyclers. Contact a mercury recycler on how to properly store, label, and ship these waste materials.

EQUIPMENT

CHECK YOUR EQUIPMENT:

- Check that your high speed evacuation system is linked to a filter-equipped vacuum system. Periodically change filters in accordance with manufacturer's recommendations. (These used filters contain amalgam. CDA recommends recycling these filters as a general practice.)
- Check that you are using the smallest available vacuum filter screen without compromising vacuum suction. Ask the manufacturer for the finest screen that will work with your unit.
- Check that vacuum pumps are equipped with filters. Even some dry turbine vacuum pumps need filters. Check with the manufacturer.
- For dry turbine vacuums, check to ensure that built up sludge in air/water separators is cleaned out regularly.
- Check that sludge from filters and air water separators is recycled or disposed of as hazardous wastes. Do not rinse sludge down the drain.

WHEN BUYING A NEW SYSTEM:

- Buy traps and filters with the smallest screen size that your vendor says will work.
- You may wish to consider the use of amalgam separator technologies. The technologies used for amalgam separation for the suction waste line vary in sophistication and effectiveness. Amalgam separator systems are used in Europe and are currently being evaluated in selected areas of the United States. Consult CDA for more information.

PHOTOCHEMICAL AND OTHER DENTAL WASTES

PHOTOCHEMICAL WASTES

X-RAY FIXER

There are two basic management options for fixer: (1) on-site treatment and disposal or (2) off-site treatment and disposal. Whether treated on-site or off-site, fixer is easily and economically recyclable and recycling is the preferred method of management. Untreated fixer cannot be discharged to the sewer.

Silver-rich photo processing wastewaters that are not treated on-site or hauled off-site for silver-recovery are subject to full regulation as hazardous wastes.

On-Site Treatment and Disposal

Silver recovery units are commercially available to remove the silver from the fixer. Prior to sewer discharge, treated solutions must meet the City of Los Angeles' wastewater discharge limit for silver of 5 ppm or mg/l.

Treatment of silver-rich photo processing solutions (i.e. fixer) to remove silver does not require a California hazardous waste treatment permit.

When using a silver recovery unit, remember to:

- Check the unit daily for leaks, spills, and overflows.
- Periodically check the flow rate of solution to the recovery system. Typically, a lower flow rate and a longer retention time will maximize silver recovery.
- If using an electrolytic unit, check the appearance of the silver plate. The plate should be tan to brown and grainy. If it is black, mushy and smells like sulfur, the amperage may be too high. If the silver plate is hard and white, the amperage is probably too low. Consult your user's guide for specific guidance.
- Test the silver concentration of the treated fixer monthly. The test can be performed with an analytical test kit or a lab analysis. Periodic testing will tell you how effective your unit is at capturing silver and will alert you to recovery unit problems.
- Record test results in a silver recovery log.

Off-Site Reclamation

Fixer solutions can be hauled off-site for treatment and recycling at a Cal/EPA licensed facility. If the silver is reclaimed, the wastewater may qualify for exemption or reduction in generator and hauling requirements. To obtain a list of silver recyclers and haulers that service City of Los Angeles, contact IWMD at (323) 342-6200.

X-RAY DEVELOPER/CLEANER

Many x-ray developer systems cleaners contain chromium. The developer solution may itself exceed the City's pH standard. Refer to the Material Safety Data Sheet (MSDS). Wastewater containing more than 5 mg/l silver, more than 10 mg/l chromium or those with pH less than 5.5 or greater than 11 are in violation of local standards and cannot be discharged directly to the sewer. Contact your photographic solution hauling service company for information on how to handle this waste.

OTHER DENTAL WASTES

FORMALIN AND GLUTARALDEHYDE SOLUTIONS

Formalin is commonly used as a tissue preservative. Formalin is a generic mixture containing formaldehyde; it may also contain methanol and other chemicals. Glutaraldehyde is the active ingredient in a number of brands of sterilizing solutions.

Waste formalin or glutaraldehyde solutions cannot be discharged to the sewer unless the following requirements are met:

- Solution must be non-hazardous (i.e. must pass the state's aquatic bioassay test for toxicity).
- Solution must have flash point no less than 140° F.
- Solution must have pH between 5.5-11.0.
- Solution must meet City's local standards for all pollutants.

Generators of waste formalin or glutaraldehyde solutions should check with their suppliers or treatment

vendors to ensure these requirements have been met. If the information is not available, generators will have to produce their own supporting data through laboratory analyses or haul the solutions off-site as hazardous waste.

Certain technologies are certified by the Department of Toxic Substances Control (DTSC) for treatment of waste formalin solutions. The treated solutions must meet the above requirements prior to sewer discharge. In addition, tiered permitting authorization may be required to conduct the formalin treatment.

Mixing glutaraldehyde waste with solutions that contain glycine as the sole active chemical may render the waste non-hazardous. Use of glycine-containing reagent is not considered treatment and does not require a permit as long as it is done on-site. Contact your local CUPA (Certified Unified Program Agency).

For businesses in the City of Los Angeles, the LAFD is the CUPA and can be reached at 213-485-8080 (for the application package) or 213-847-0600 (for a knowledgeable inspector). Businesses in Los Angeles County should call the County CUPA at 323-890-4045.

MEDICAL WASTES

Medical wastes consist of sharps (hypodermic needles, blades, syringes) and biohazardous wastes (i.e. laboratory wastes, wastes covered with blood or blood products, and pharmaceuticals). Medical wastes should be managed and disposed according to the requirements set by the Medical Waste Management Program of the Department of Health Services (916-327-6904).

Wastes containing mercury, or contaminated by mercury, should never be placed with medical wastes (infectious waste or "red bags") as these wastes may be incinerated thus releasing mercury into the environment.

HAZARDOUS MATERIALS AND WASTE MANAGEMENT

BUSINESS PLAN

HAZARDOUS MATERIALS BUSINESS PLAN

Dental offices that use and handle hazardous materials (i.e. oxygen and nitrous oxide) may be required to register and file a hazardous materials business plan or a business emergency/contingency plan with the local CUPA. If the total volume of containers for oxygen and nitrous oxide does not exceed 1,000 cubic feet, these gases are exempt from business plan and registration requirements.

Clean water is something we can all smile about.

HAZARDOUS WASTE REQUIREMENTS

Dental offices must consider carefully what requirements apply if they generate a waste that can be regulated as hazardous waste. If you have questions about whether you are generating hazardous wastes or wish to discuss hazardous waste issues (i.e. storage, handling, treatment, and disposal) call your local CUPA.

Certain requirements will be waived if the waste is recycled or reclaimed. Hazardous wastes must be hauled by haulers licensed or approved by the state. Generators may “self-haul” their own waste in volumes less than five gallons or 50 pounds without being licensed. Facilities receiving hazardous waste, whether for recycling, treatment or disposal must be licensed by the state, or in some cases, your local agency.

EPA GENERATOR ID NUMBER

- All generators of a hazardous waste must obtain an “EPA Generator ID Number.” You will be asked to provide this number to your recycler or other licensed hauler. To obtain an “EPA ID Number” call Cal/EPA Department of Toxic Substances Control at 1-800-618-6942.

HAZARDOUS WASTE CODES

Following is a list of EPA and State of California waste codes for hazardous waste materials commonly generated by a dental office. You will need these numbers to complete your EPA ID Number application. The codes are not applicable if the waste is recycled.

WASTE	EPA CODE
Amalgam Waste	D009, D011
Photographic Fixer	D011
Ignitable Waste	D001
Waste containing Chromium	D007
Waste containing Lead	D008
Waste Mercury	D009

LABELING

Containers of amalgam waste and photo processing solutions that are designated for recycling/reclamation, and meet specific requirements may also be labeled “Excluded Recyclable Material.”

Containers that store hazardous waste must be labeled with the words “Hazardous Waste” and words that identify the contents. The label must also have the following information as required by State law:

1. Accumulation start date
2. Name and address of office generating the waste.
3. An indication of the type of hazard, i.e., flammable, corrosive, reactive or toxic.

Appropriate labels are available from your licensed hazardous waste recycler or hauler.

STORAGE

Store all hazardous waste in containers that can be tightly closed. Be sure that the container is compatible with the nature of the waste you are storing. Your hazardous waste recycler or hauler may also have specific packaging

requirements for each type of waste. Be sure you know the requirements of your recycler and/or hauler to avoid extra charges.

Containers should be kept in a secure area away from the public and must be inspected once a week for leakage or deterioration. You should keep a written log showing the date of each inspection, the name of the inspector, and any comments or corrective actions taken.

RECORD KEEPING

You must keep records of the hazardous waste you generate whether it is recycled or disposed off-site. In general, if you send your hazardous waste off-site for recycling or disposal, you must utilize a hauler licensed by Cal-EPA and you must complete and file a hazardous waste manifest for each shipment. In some cases, the hauler will provide you with a receipt instead of a manifest. You must maintain a copy of either type of shipping paper for a minimum of three years. Inspectors from regulatory agencies may ask to review these records at any time.

If you transport hazardous waste yourself (“self-haul”) to a licensed facility, you should keep a disposal log of the date, type and quantity of waste delivered. Attach the receipt for each shipment to your log.

LIST OF CONTACTS

For information regarding discharges to the sewer:

City of Los Angeles
Industrial Waste Management Division
2714 Media Center Drive
Los Angeles, CA 90065
(323) 342-6200
TTY Currently Not Available
www.lacity.org/san

For information on Hazardous Materials and Wastes (usage, storage, accidental release, fire code plans and inventory requirements):

City of Los Angeles Fire Department
Industrial and Commercial Section
(213) 485-8080

For information on Medical Waste Management (regulated medical waste include sharps, and biohazards):

State Department of Health Services
Environmental Management Branches
Medical Waste Management Program
www.dhs.ca.gov/ps/ddwen/environmental/emb/medwasteindex.htm
(916) 327-6904

For more information on occupational and worker safety:

Cal-OSHA Consultation Service
(800) 963-9424

The California Dental Association offers the book "A Regulatory Compliance Manual". For information, call:

California Dental Association
(800) 736-7071 ext. 5110

BEST MANAGEMENT PRACTICES

WASTE TYPE	SOURCE	MANAGEMENT PRACTICE
Amalgam particles	Traps, screens, excess mix	1) Send to recycler or, 2) manage as a hazardous waste. Do not place in trash, medical or biohazardous (red bag) wastes.
Waste mercury	Spills, spill cleanup	1) Send to recycler or, 2) manage as hazardous waste. Do not place in trash, medical or biohazardous (red bag) wastes.
Fixer	X-ray process	1) Haul offsite to a licensed reclaimer or, 2) treat before discharge to sewer (contact local sanitation agency).
Developer	X-ray process	1) Contact local sanitation agency regarding sewer discharge requirements.
X-ray system cleaners that contain chromium	X-ray process	1) Switch to non-chromium containing cleaner or, 2) manage as hazardous waste.
Disinfectants with formaldehyde or aldehydes	Disinfecting	1) Contact local sanitation agency regarding sewer discharge requirements.
Medical wastes	Sharps, gauze, pathological wastes	1) Place in sharps container, red bag or biohazardous waste for medical waste disposal (do not mix with mercury wastes).
Lead foils and shields	X-ray protective shields	1) Send to metal reclaimer or, 2) dispose of as hazardous waste.



As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and upon request, will provide reasonable accommodations to ensure equal access to its programs, services, and activities. Please contact 323-342-6200 as soon as possible to let us know the accommodations that you would need to facilitate your participation.

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