

**BEST MANAGEMENT PRACTICES (BMPs)  
FOR DENTAL OFFICES**

**For Minimization of Mercury and Imaging Discharges to the Sewerage System  
By Dental Care Providers**

Prepared by the Idaho State Dental Association

**Introduction and Regulatory Background:**

The Idaho State Dental Association has prepared this guide to assist dentists on how to best manage the disposal of dental office wastes. Dental office wastes (amalgam particles, waste mercury, fixers, developers, x-ray film packets, and chemiclave chemicals) typically cause toxic chemicals (mercury, silver, lead, developer solution chemicals, and chemiclave solutions) to enter our streams, sewers, and landfills. In addition to the environmental benefits of proper waste management, through pollution prevention, dentists can also reduce the regulatory requirements associated with dental wastes by voluntarily complying as outlined.

Mercury discharges to the environment are receiving significant attention throughout the United States and in Idaho. Local city and county wastewater agencies have mechanisms to regulate dental office discharges through existing sewer use ordinances and the local pretreatment program. The ISDA Dental BMP Program has been developed to address mercury amalgam and other environmental concerns and regulatory requirements. Specifically, the ISDA has developed this program to help Idaho dentists properly manage dental wastes to ensure compliance with applicable environmental, biomedical, occupational health, and transportation regulations.

This program is a two-tiered process that relies on relatively easy-to-implement and cost-effective BMPs with additional or optional BMPs included to provide further waste management and pollution prevention options that are available.

This guide has been approved by the Idaho State Dental Association Board of Trustees.

You should share this information, or a summarized version of it, with your local wastewater treatment facilities. It is anticipated that wastewater facilities representatives may visit some dental offices within their service areas from time to time to ensure the appropriate BMPs are in place. You can assume any visit will consist of confirmation that staff are trained and are performing the minimum BMPs. The request we make of inspectors is that they make prior arrangements with the dental office before an inspection visit which will allow for minimum disturbance of office routine.

**The target date recommended for Idaho dental offices to have this BMPs plan in place is October 1, 2004.**

## **Best Management Practices Recommended Minimum BMPs**

**This set of recommended minimum BMPs relies on two principal concepts:**

- 1) Dentists using a minimum of dental waste products in order to minimize the amount of waste generated by the dental office.
- 2) Properly collect, store, and ship dental wastes

Minimizing the use and recycling of dental waste products is the preferred approach because this reduces the amount of, and costs associated with, dental wastes. Local and state recycling vendor information is contained in an appendix to this document to make it easy to contact recyclers that can help.

To dispose of dental wastes, if recycling is not an option, proper disposal as hazardous waste is necessary. Many local, city, and county wastewater agencies have hazardous waste collection programs designed for small generators of wastes such as dental care providers. For example, Ada County operates a conditionally-exempt small quantity generator (CESQG) program that can accept up to 200 combined pounds of scrap amalgam, x-ray fixer solution, and lead foils per month.

### **AMALGAM WASTES**

**1) Limit the amount of amalgam used to the smallest appropriate size for each restoration.**

**2) Eliminate all use of bulk elemental mercury** (also referred to as liquid or raw mercury). Use only pre-capsulated dental amalgam. Any unused bulk elemental mercury must be recycled or hauled away as hazardous waste. It must never be poured in the regular trash, infectious waste (red bag), or down the drain. (See # 6)

**3) Change or clean chair-side amalgam traps frequently. If cleaning the traps, flush the vacuum system before changing the chair-side trap.** Don't rinse the amalgam traps over drains or sinks. Consider dedicating specific chairs to amalgam placement and removal to minimize the number of amalgam-containing traps that need to be managed (traps associated only with hygiene chairs can be disposed of in the regular trash).

**4) Change vacuum pump filters at least once per month or as directed by the manufacturer.** This action will also improve suction and extend the life of the vacuum pump.

**5) All amalgam waste must be recycled or hauled away as hazardous waste:**

- X Non-contact amalgam (scrap);
- X Contact amalgam (e.g., amalgam removed from patients and extracted teeth containing amalgam);
- X Leaking or unusable amalgam capsules.

Amalgam waste must never be put in the regular trash, put in with infectious waste (red bag), or flushed down the drain. Chair-side traps or vacuum pump filters containing amalgam must never be rinsed over drains or sinks.

**6) Used or empty amalgam capsules can be placed in the regular trash.**

**7) Store amalgam waste as directed by your recycler or hazardous waste disposal program.** This typically includes being in covered, segregated, and clearly labeled airtight plastic containers. Check with your recycler for any other specific requirements such as disinfection steps or necessary dry storage.

**8) Maintain a log of amalgam waste generation and recycling/disposal.** Documentation of all amalgam waste recycling and disposal must be obtained from your recycler or hazardous waste hauler, kept on file, and made available upon request.

### **X-RAY FIXER AND DEVELOPER**

**1) Properly manage X-ray fixer waste.** Fixer waste is considered a hazardous waste because of its high silver content. However, fixer is easily recyclable. Recycling is the management method recommended by regulatory agencies. There are two suitable methods of managing fixer waste:

- a) Keep used fixers separate from used developers.
- b) You may use a silver recovery unit for you developing system; or
- c) You may give, sell, or pay someone that operates a silver recovery unit to take your fixer.

If you dispose of your fixer off-site, collect and store it in a closed plastic container labeled: Hazardous Waste -- Used Fixer--Contains only fixer. Many recyclers want to be sure that the liquid does not contain developer. If it does, it could actually remove silver from the recycling equipment. The liquid that has run through a recovery unit can be disposed of down the drain.

In addition, some photo developing companies will accept x-ray fixer from dental offices. You may wish to check with those companies in your area.

**2) Do not use products to solidify x-ray fixer or other dental waste.** These products simply transfer the waste to a different wastestream because regular trash is taken to the landfill.

**3) Do not mix X-ray developer solutions with fixer solutions.** Waste developer can be washed down the drain, if it is not mixed with fixer. Flush the drain thoroughly as you discharge developer down the drain.

Some units mix the fixer and developer after they are spent. The resulting solution is hazardous and should be disposed of as hazardous waste (see amalgam waste for more information on hazardous waste disposal options). However, you may purchase an adapter kit to keep the fixer and developer separate.

### **LEAD FOIL AND LEAD SHIELDS**

**1) Recycle or dispose of lead foil that shields x-ray film or protective lead shields as hazardous waste.** These materials should never be disposed of in the regular trash because they are hazardous waste, unless they are recycled for their scrap metal content. Companies which recycle amalgam or fixer may also accept lead waste. Eastman Kodak has a special mail in program for dentists to recycle lead foil. A list of metal reclaimers is given in the appendix.

**2) Do not use lead foil or give lead foil to patients to melt down for fishing weights.** This is not a recommended practice . Dental offices are especially encouraged not to give the lead foil to patients.

## CHEMICLAVE WASTE

**1) Move away from chemiclave sterilization to autoclaves.** Normal use and discharge of chemiclave solutions is acceptable although discouraged. Flush following disposal with several gallons of water so that it does not sit in the sink trap or introduce a slug of material to the sewer system.

**2) Use up or dispose of discarded materials properly.** Dental offices should buy only the amount of chemical sterilizer that you need: this will eliminate the need to dispose of the excess material. If you switch to an autoclave and has a supply of unused formaldehyde, you should give this to a dentist who still uses a chemiclave. The local wastewater agencies would like to avoid a large "slug" of formaldehyde at any one time.

## LABELING

**1) Properly label the container in which you store your hazardous waste.** Although you should check with your disposal company, typically these containers must be labeled with the words "hazardous waste" with a description of the waste. Example: "Hazardous Waste - - Contains only used fixer, for recycling only."

The date you start filling the container should be written on the container or on a label. Standard labels are commercially available. Make sure you keep a written record of any material you send or deliver to a recycling entity. Be sure to request a "Certificate of Recycling or Disposal." This could be simply a note on their letterhead that they received "x" gallons of fixer and that it would be processed in their silver recovery unit.

## ADDITIONAL RECOMMENDED BMPs

- 1) \_\_\_\_\_ Use disposable amalgam traps instead of reusable traps, and have them recycled or hauled away as hazardous waste if they contain amalgam waste.
- 2) \_\_\_\_\_ Clean or replace sink traps and sumps, taking care to avoid spillage of the contents from plumbing parts. Removed sludge must be recycled or hauled away as hazardous waste.
- 3) \_\_\_\_\_ Use, when appropriate, based on your professional judgement, mercury-free alternatives to amalgam (e.g., gold, ceramic, porcelain, composites, polymers, glass ionomers).
- 4) \_\_\_\_\_ Install and properly maintain a dental amalgam separator or other technologies to reduce amalgam discharge.
- 5) \_\_\_\_\_ Implement a program to have mercury-containing thermostats, switches, and fluorescent light bulbs recycled when they are replaced. Thermostats and switches should be replaced with mercury-free alternatives.
- 6) \_\_\_\_\_ Describe on attached pages any additional BMPs for mercury discharge minimization that you may have identified and plan to implement.