



Standard Operating Procedure for disposal of Hazardous waste

**1. PURPOSE:**

The purpose of this SOP is to institutionalize the effective segregation and disposal of hazardous waste generated in Dental facility/Radiology at Shri B. M. Patil Medical College, Hospital and Research Center, BLDE (DU), Vijayapura to minimize the risk of occupational exposure and environmental contamination with such waste.

**2. SCOPE:**

The Use of heavy metal containing chemicals or compounds in the dentistry or radiology etc makes the disposal of these compounds critical to prevent any risk of environmental contamination. Dental amalgam particles are a potential source of mercury in the sewer. Amalgam particles are created when old fillings are removed and new fillings are mixed. Because mercury and other heavy metals cannot be effectively removed by local wastewater treatment plants, it is recommended that any amalgam particle removed is recycled to prevent environmental contamination with mercury which can be eaten by fish. Mercury contaminated fish are the most likely source of infection. Similarly X ray fixer, which is used in dentistry, is a source of silver. Lead foil contain hazardous materials are hazardous waste unless they are recycled for their scrap metal content. This document will be used along with the SOP No.3 the revised document on disposal of BMW.

**3. RESPONSIBILITY:**

All doctors including Residents; nursing staff and hospital employees posted in various Concerned units are being trained, time to time and guided to follow this SOP.

**4.0 SOURCES OF HAZARDOUS WASTE:**

**4.1 Amalgam waste:**

4.1.1 Amalgam particles generated from removal of old filling or during creation of new filling must be recycled.

4.1.2 If recycling not possible then all the amalgam particles must be collected in labelled Plastic containers. These containers will be collected by the biomedical waste management team for adequate disposal of these hazardous waste.

4.1.3 Amalgam must be stored in small amount of photographic fixer in a closed container labeled scrap amalgam.

4.1.4 Empty amalgam capsules without any visible amalgam can be disposed of in the Garbage.

4.1.5 Following points must be kept in mind regarding the disposal / handling of amalgam

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- 4.1.5.1. Do not put scrap amalgam in the sharps container or red biohazard bag or trash.
- 4.1.5.2. Does not rinse scrap amalgam down the drain.
- 4.1.5.3. Do not remove excess amalgam from the amalgam well with the high-speed suction (the vacuum line).
- 4.1.5.4. Do not clean up a mercury spill using a vacuum cleaner.
- 4.1.5.5. Do not place extracted teeth with amalgam restorations in the red biohazard bag. They should be placed in the labeled container.
- 4.1.5.6 Use universal precautions when handling extracted teeth (glasses, gloves and mask).

**4.2. Free Mercury / Elemental Mercury:**

- 4.2.1 The pre capsulated alloy is to be used to eliminate the possibility of an elemental mercury spill.
- 4.2.2 For disposal of free mercury initiate a reaction with amalgam alloys to form scrap amalgam, which can then be collected as scrap amalgam and can be discarded.
- 4.2.3 The following points must be kept in mind while handling free elemental mercury
  - 4.2.3.1 Do not rinse elemental mercury down the drain.
  - 4.2.3.2 Do not dispose of elemental mercury in the trash.
  - 4.2.3.3 Never dispose of elemental mercury in the sharps container, or as medical waste.

**4.3 Mercury spill**

- 4.3.1 In the event of a mercury spill, put on personal protective equipment.
- 4.3.2 Secure the spill area and restrict access to avoid spreading the mercury further, and avoid contaminating shoes or other clothing or equipment. Close lab doors, alert other workers in the area to leave until spill is cleaned up.
- 4.3.3 If the mercury is in a hot environment (e.g. in a heating block or incubator), turn the heat off, and fetch respirator in addition. Heating will make mercury enter the vapor phase, where it poses an inhalation risk.
- 4.3.4 Carefully gather up all the broken glass fragments if any and put these in a zip lock plastic.
- 4.3.5 Assuming mercury is on a flat smooth surface (e.g. bench or floor), use plastic scoop to collect the mercury droplets in one place. Check under and around benches and equipment in a wide area to ensure all the droplets are accounted for — these can travel a long way!
- 4.3.6 If the spill is not on a flat, smooth surface, cleanup may be more difficult. Consult the spills officer or the safety officer for assistance in this case.
- 4.3.7. Use a plastic 5 ml or 10 ml syringe to suck up as much of the mercury as possible. When it's all collected, tape up the syringe nozzle with masking tape or similar so that mercury can't leak back out.
- 4.3.8 Put the mercury-containing syringe into the plastic. Bag that has the broken glass in it.
- 4.3.9 If there is residual mercury add Zinc powder over it. Followed by addition of 5-10 percent sulfuric acid.
- 4.3.10 Use the scoop and scraper to collect the powder back into its original bag, and label as "Mercury contaminated", put in with rest of waste in plastic bag.
- 4.3.11 Use detergent to clean the area with moist paper towel to mop up the area impacted by the spill.

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Add this paper towel into the waste bag same waste bag.

**4.4. X ray Fixer:**

4.4.1 X ray fixer should never be drained in the sewer

4.4.2. All the fixer should be collected and stored in a closed plastic container labeled: Hazardous Waste - Used Fixer. -

4.4.3 The collected used fixer should be recycled in silver recovery unit and the liquid then be drained off.

**4.5. X ray Developer**

4.5.1 Developer solutions should not be mixed with fixer solutions.

4.5.2 Waste developer can be drained if it is not mixed with X Ray Fixer.

4.5.3 Flush the drain thoroughly as developer is discharged down the drain.

4.5.4 The fixer can be recycled and the developer can be drained.

**4.6 Lead foils**

4.6 .1 Lead foil that shields X-ray film or protective lead shields should not be disposed of in the garbage

4.6 .2 Lead foils should be stored after proper labeling and then sent for recycling.

**4.7 X ray cleaners**

4.7.1 X-ray cleaner should be checked for presence of chromium.

4.7.2 The chromium based *fixers* are to be collected in plastic containers with label Hazardous waste-Chromium based fixer. This plastic container will be collected by biomedical waste management team for appropriate disposal.

4.7.3 The non-chromium based fixer can be drained off in the sewer.

**4.8 Other waste:**

4.8.1 All the other infectious waste can be disposed off using the revised SOP on Biomedical Waste Management Guidelines which has been issued.

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AMENDMENT SHEET

Sl. No.	Date	Page No.	Revision No.	Nature of Amendment Selection/Details	Authorization

PRINCIPAL

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