

Medical Facilities

Best Management Practices For Hazardous Materials/Waste Handling

(Updated July 2016)

Best Management Practices (BMPs) should be thought of as “good housekeeping” procedures. In medical facilities, you may have waste streams regulated as hazardous waste by federal and state laws. Many of these waste streams could be considered non-hazardous if properly recycled instead of disposed of in the trash or down the drain. Listed below are typical waste streams, along with procedures to help you comply with these regulations and help reduce the liabilities associated with noncompliance.

Silver Recovery:

Depending on the locations of facilities and the pre-treatment requirements, you may be allowed to dispose of the photo processing liquid waste stream into the sanitary sewer. Silver is the regulated element in this waste stream and can be removed and sold. Below are some guidance suggestions for your use in determining BMPs for the facility. Each facility’s needs will depend on location and amounts processed each day.

Generation Sources:

- Silver is the element used as the light-sensitizing agent in most photographic materials and is present in photographic fixer solutions as silver thiosulfate complex.
- During the developing process, silver is released in the fixer and the bleach/fix. In addition, silver is also present in the wash water as a result of “drag off” from the different processing tanks.
- The concentration and distribution of silver in the photo processing solutions depends on the type of photo processing system used, method of collection, type of wash and the amount of film processed per day.

Disposal Options:

Eventually, the solutions must be replaced and used solutions must be disposed of.

- One method of disposal for the used solution is to store the used solutions in Department of Transportation (DOT) approved containers and then have them hauled away by a licensed commercial hazardous waste hauler.
- Another possible disposal method is to discharge the solutions to a Publicly Owned Treatment Works (POTW), also known as the sanitary sewer system. If the film processor elects to discharge the “waste” chemicals to a POTW, they must be treated to reduce the silver content prior to discharge. **It is required that you receive written permission from your POTW’s “pretreatment officer” to discharge this type of waste stream.** The pretreatment officer will approve or disapprove your request based on silver content of the waste, their operational permit requirements and the plant’s capacity for this type of waste stream.
- Discharges to a septic system will require approval from the Lee County Health Department and may **not** be attainable. This type of disposal is not recommended because of the potential to contaminate onsite property and because these chemicals may destroy the biological process necessary for septic tanks to continue effective operation.
- All records for disposal or recycling must be kept on site for three years.

Processing Chemicals and Washes

Waste fixers, system cleaners, low flow washes, and washless stabilizers may be hazardous due to heavy metals or organic chemicals they contain. For example, waste fixers and stabilizers may contain hazardous levels of silver. Prior to disposal, determine whether waste fluids are hazardous. Please read the Safety Data Sheets (SDS) [formerly Material Safety Data Sheets (MSDS)] to help in this determination.

Solvents

Common solvents used for cleaning film, work surfaces, and equipment may contain hazardous substances. For example, film cleaners may contain trichloroethylene, a listed hazardous waste or they may be hazardous due to flammability, having a flash point of less than 140 degrees Fahrenheit.

Photographic Film

Undeveloped photographic film contains high concentrations of silver. Before disposing of undeveloped film waste, take the proper steps to remove the silver from the film. Film ends and tabs can be soaked in waste fixer to remove the silver from the film before disposal.

Black and white film and x-rays do contain residual levels of silver after developing. Before disposing of these negatives, contact a film recycling contractor for reclamation of the residual silver and the film.

Silver Recovery Units

Two popular methods of silver recovery produce wastes and effluents that are hazardous. Wastes sent to a contractor for reclamation or recycling are exempt from hazardous waste regulations. It is important to properly maintain silver recovery units.

Electrolytic recovery units cause silver to collect in electrolytic cathodes. The silver can be recycled and the de-silvered fixer can generally be discharged to a sewer or reused. Obtain written notification from your sewer authority before discharging de-silvered fixer. Care must be taken to prevent the formation of sulfides. Silver concentrations in the effluent may be high.

Metallic replacement or chemical replacement cartridges form a silver sludge that may be reclaimed. Silver concentrations in the effluent are high unless two units are in series.

Wastewater

Waste processing chemicals and washes or wastewaters from metal recovery units should never be discharged to the ground or to a septic tank system. Waste processing chemicals, wastewater, etc. should be discharged only to a sanitary sewer system with written permission from your local sewer authority.

Substances commonly used in photo processing and subject to wastewater regulations include:

- Ammonia
- Silver
- Iron
- Sulfites/Sulfates
- Formaldehyde
- Heavy metals: cadmium, chromium and zinc

Fixers, washless stabilizers, and other silver-rich wastewater should undergo silver recovery before being discharged to a sanitary sewer system. It may be necessary to contract with a licensed photographic waste disposal company to properly dispose of your silver-rich solutions.

Lead Foil Packaging:

The lead foil backing on x-ray film needs to be recycled, not thrown into the trash. If the foil backings are not recycled, they are considered a hazardous waste. Some of the film suppliers will provide a recycling service; you should contact your supplier to explore your options. All records for disposal or recycling must be kept on site for three years.

Thermometers:

Thermometers containing mercury should not be thrown into the trash. A typical thermometer can contain 0.5-3 grams of mercury. The mercury **MUST** be recycled. This can be done by finding a licensed and insured hauler. Thermometers should not be broken. If one happens to break, place all mercury and glass into a closed container for proper disposal. Do not use bare hands or a regular vacuum to clean up mercury; this is hazardous to your health. Less hazardous options for mercury thermometers are alcohol-filled or digital thermometers. All records for disposal or recycling must be kept on site for three years.

Disinfectant waste:

Most of the solvent waste generated at medical facilities comes from disinfecting or cleaning instruments or working areas. Depending on the concentration of the solution you are using, the waste may be hazardous. Reading the Safety Data Sheet for your disinfectant will determine your disposal method. If the waste is hazardous, it must be captured in a container that is sealed so no evaporation occurs and treated as hazardous waste. All records for disposal or recycling must be kept on site for three years.

Fluorescent Bulbs:

Fluorescent bulbs/devices are considered hazardous waste because they contain the heavy metal **mercury**. However, if you recycle under the Universal Waste Regulations, fluorescent bulbs/devices do not qualify as hazardous waste. Please call the Pollution Prevention (P²) Program for a list of fluorescent bulb recyclers and handling instructions. Caution: if a supplier tells you that their bulbs are environmentally safe, remember that they are trying to sell you a product, and that they may not be familiar with the State and Local regulations that pertain to the proper recycling or disposal of these mercury-containing bulbs. **Lamps or devices with any mercury must be recycled following the Universal Waste Regulations or disposed of following hazardous waste regulations.** Please refer to the Management of Spent Mercury-Containing Lamps and Devices handout for further details.

***Safety Data Sheets** are a good start to determine if your waste stream will be hazardous waste. They do have their limitations if they are too vague. The SDS does not take into account what process or system the product may be used in or what your management practices are for preventing cross contamination. Before purchasing any product, request the SDS to see what is in it and to help avoid costs associated with the purchase, use, and disposal of the product.

Do not store any materials/waste near storm drains, ditches, creeks, rivers, canals or any bodies of water that would be contaminated if a spill occurs.

Do not throw away, or send to a bookkeeper, receipts that show proper disposal of waste materials. They are required to remain on site for a minimum of three years. This includes contracts with hazardous waste haulers.

Do not take the word of any sales person who will not supply the SDS for the product he/she is selling. Some will say that the material is biodegradable or environmentally friendly, but the process that you use the material in may contaminate the product and cause it all to be regulated (i.e., equipment degreasing and rinsing).

Do not dispose of any material into your septic system, sanitary sewer, or storm sewer. If you want to do this you must have written permission from the regulatory agency that permits that particular system. For Septic Systems, this is the Department of Health; for Sanitary Sewers, it is the local utility district in which your facility is located.

Do not store hazardous waste out of containment areas. Make sure all containers are properly labeled (include dates where necessary).

Do not hesitate to ask questions when it comes to managing your hazardous waste streams.

If you have any questions, please call the Division of Natural Resources Management, Pollution Prevention (P²) Program at (239) 533-8821.