



Washington Suburban Sanitary Commission

Regulatory Services Group Industrial Discharge Control Program

Managing Silver-bearing Wastes in Photo Processing Best Management Practices (BMPs)

Silver has a very high aquatic toxicity and accumulates in the tissue of aquatic organisms. Photo processing chemicals that accumulate silver during use, such as fixer, bleach-fix, and stabilizer, are a concern because improper disposal of photo processing chemicals can have an adverse impact on groundwater and surface water as well as affect the proper operation of the municipal treatment plant and contaminate biosolids.

Photo processors discharging to the Washington Suburban Sanitary Commission's (WSSC's) sanitary sewer must reduce the silver content of their photo processing wastewater to 1.2 mg/l or less.

Photo processors can help avoid the generation of silver waste through waste reduction, reuse or recycling. Silver recovery systems collect the silver that would have been sent to the sewer, allowing the silver to be recycled. Through proper waste management, businesses can minimize the amount of wastes sent to the sanitary sewer. Recovery of silver-bearing waste is just one way to do this.

Best Management Practices for Photo processing

- Seal floor drains connected to the sanitary sewer in production areas
- Install secondary containment around all machines that contain fluids. Do not leave open containers unattended unless they are within secondary containment.
- Keep cleanup materials, such as absorbents, handy at all times.
- Keep your facility's Spill Response Plan updated and available at all times.
- Place signs on faucets reminding employees not to use water to clean up spills.
- Label machine drains in your shop to indicate if they flow to a silver treatment system or directly to the sewer.

Used Chemicals

All spent chemicals (except developer from photo and x-ray film processing operations) must be treated prior to discharge. These include fixer, bleach-fix, stabilizer, and wash water.

Typically, treatment of silver-bearing waste includes at least two metallic replacement (steel wool) cartridges in series, electrolytic silver recovery unit followed by one or two cartridges, or small scale precipitation. The system provider can usually dispose of your spent cartridges and give you a reimbursement for the value of the silver. For optimum treatment:

- Keep wastes segregated to facilitate reuse, recycling or treatment;
- Ensure that the treatment system is serviced at the recommended intervals and keep records of all servicing;
- Train your employees so that a person knowledgeable about the treatment system is present whenever it is in operation; and
- Test the system for recovery of silver and determine optimum times for cartridge replacements. Future cartridge replacements may then be based on flow, square footage of film & paper processed, or time-in-service.