

Single Residence or Small Flow Wastewater Treatment Facility Chlorine Tablet Disinfection Guidelines

The use of chlorine tablets for disinfection of wastewater from a single residence or small flow wastewater treatment facility is important for the protection of human health and the environment. It is also important for proper operation and maintenance of these facilities that only *calcium hypochlorite* tablets are used. Tablets made for swimming pool use (made of *trichloroisocyanuric acid*) should *never* be used in wastewater. Use of the wrong tablets may lead to incomplete disinfection; may be hazardous to the aquatic life in the receiving stream, and may result in the generation of an explosive and lethal gas within the treatment unit.

Calcium hypochlorite tablets are the only readily available products labeled for wastewater disinfection. The Department of Environmental Protection's (DEP) Small Flow Treatment Facilities Manual (available at www.dep.state.pa.us, keyword: 362-0300-002) specifies that *only* calcium hypochlorite tablets are approved for this use. They are very reactive and quickly kill pathogens (disease-causing organisms) and bacteria present in wastewater. Just as important—the remaining chlorine present after disinfection rapidly dissipates so that it will be less likely to damage the receiving stream.

The other type of chlorine tablets are made of trichloroisocyanuric acid. These tablets are usually referred to as “swimming pool tablets” and are widely available from pool supply stores, retail stores, and mail order outlets. Individuals unfamiliar with wastewater treatment may purchase these by mistake under the assumption that all chlorine tablets are the same. These tablets dissolve at a slower rate than calcium hypochlorite and work well for swimming pool disinfection where clean water is continually recirculated and slow dissipation of residual chlorine is desired. However, they are unsatisfactory and dangerous for wastewater treatment and are not approved by DEP for this purpose. When put into a flow-through wastewater tablet feeder, swimming pool tablets will not thoroughly disinfect the effluent. The chlorine residual remaining after disinfection is slow to dissipate and may damage the receiving stream. High residual chlorine levels may kill fish.

All chlorine products are hazardous and must be handled with care. Installers or plant operators handling calcium hypochlorite tablets must be thoroughly familiar with the product label directions. Handlers should never repack the tablets into a smaller container or plastic bags. This practice is against the law and extremely dangerous. An additional danger arises in some installations using swimming pool tablets for disinfection. These tablets are designed to be totally immersed in water. Swimming pool tablets that are exposed to periodic flows, such as those in a single residence or small-flow wastewater treatment system, begin to decompose and release an explosive gas called nitrogen trichloride. If a sufficient concentration of nitrogen trichloride builds within the wastewater system, it can explode violently when exposed to an open flame or organic contaminants such as those contained in sewage. Though rare, these explosions can be devastating, causing extensive property damage and potentially serious injuries.

Questions concerning wastewater treatment guidelines should be directed to DEP's regional offices:

Southeast Regional Office

2 East Main St.

Norristown, PA 19401-4915

Main Telephone: 484-250-5900

24-Hour Emergency: 484-250-5900

Counties: Bucks, Chester, Delaware, Montgomery and Philadelphia

South-central Regional Office

909 Elmerton Ave.

Harrisburg, PA 17110-8200

Main Telephone: 717-705-4700

24-Hour Emergency: 877-333-1904

Counties: Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry and York

Southwest Regional Office

400 Waterfront Drive

Pittsburgh, PA 15222-4745

Main Telephone: 412-442-4000

24-Hour Emergency: 412-442-4000

Counties: Allegheny, Armstrong, Beaver, Cambria, Fayette, Greene, Indiana, Somerset, Washington and Westmoreland

Northeast Regional Office

2 Public Square

Wilkes-Barre, PA 18701-1915

Main Telephone: 570-826-2511

24-Hour Emergency: 570-826-2511

Counties: Carbon, Lackawanna, Lehigh, Luzerne, Monroe, Northampton, Pike, Schuylkill, Susquehanna, Wayne and Wyoming

North-central Regional Office

208 W. Third St., Suite 101

Williamsport, PA 17701-6448

Main Telephone: 570-327-3636

24-Hour Emergency: 570-327-3636

Counties: Bradford, Cameron, Clearfield, Centre, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga and Union

Northwest Regional Office

230 Chestnut St.

Meadville, PA 16335-3481

Main Telephone: 814-332-6945

24-Hour Emergency: 800-373-3398

Counties: Butler, Clarion, Crawford, Elk, Erie, Forest, Jefferson, Lawrence, McKean, Mercer, Venango and Warren

For more information, visit www.dep.state.pa.us, keyword: Wastewater.