



HEALTH ALERT

Safe Handling and Storage of Pool Chemicals

Each year swimming pool operators and maintenance staff suffer injuries and illnesses due to exposure to chemicals used to treat water in public and private pools.* In many cases, these exposures also harm bathers and other occupants of the facility. Acute exposures to dust and gases from Chlorine-containing pool chemicals can lead to respiratory injuries, asthma exacerbations and eye and skin irritation.

Safe handling, mixing and storing of pool chemicals is necessary to prevent unintentional chemical exposures.



*Pools include spas, whirlpools, wading pools, hot tubs, water and spray parks.

Case Study:

In 2012, two employees working at a Connecticut hotel attempted to adjust pool chemical levels in the hotel swimming pool unaware that the employer had changed chemical suppliers. The employee choose the pool chemicals by lid color and container size instead of reading the label and unknowingly added muriatic acid to the chlorine feeder. The acid reacted with the chlorine inside the feeder, creating a chlorine gas cloud.

Both workers were exposed causing respiratory distress as well as potentially exposing building occupants. Chlorine gas dispered through the buildings ventilation system causing a mandatory evacuation of the facility by responding EMS Personnel. The exposure level was determined to be five times the Occupational Safety and Health Administration (OSHA) permissible exposure limits for Chlorine.



Steps to prevent unintentional chemical exposure can be achieved with proper hazard recognition, training, labeling and storage of containers and chemical handling methods.

Safe Handling and Chemical Storage:

Manually adding chemicals to pool water must be performed by carefully following the manufacturer's instructions. It should only be performed by employees who clearly understand safe handling and storage precautions of pool chemicals. The following precautions highlight important safety guidelines for pool operators and maintenance staff.

- ✓ Always add chemicals to water; never water to the chemical.
- ✓ Adequate personnel protective equipment (PPE) such as safety goggles and gloves, should be used at all times when handling chemicals.
- ✓ Chemical storage areas and pump rooms should be well ventilated with a separate ventilation exhaust to the outside (if possible).
- ✓ Store incompatible chemicals away from each other, including liquids and solids and prevent water from rainfall/plumbing leaks from contacting chemical supplies.
- ✓ Do not store flammable materials or ignition sources such as gas-powered equipment in the chemical storage area.
- ✓ Follow product label directions for safe disposal; never reuse containers.
- ✓ Contact your local municipal recycling facility or the Connecticut State Department of Energy and Environmental Protection Agency for proper disposal procedures for pool chemicals in unlabeled containers at <http://www.ct.gov/deep/cwp/view.asp?a=2714&q=324884>

Always respond to pool chemical spills immediately.
Follow your pool's Emergency Chemical Spill Response Plan,
and be sure to contact the proper authorities and management.

Connecticut Department of Public Health
Environmental Health Section
Environmental and Occupational Health Assessment Program
410 Capitol Avenue, MS # 11OSP
P.O. Box 340308
Hartford, CT 06134-0308
(860) 509-7740
[Http://www.ct.gov/dph/occupationalhealth](http://www.ct.gov/dph/occupationalhealth)

Applicable Safety & Health Standards:

1910.1200 Hazard Communication Standard requires that employees are educated about the hazards from certain chemicals they work with and informed about protective measures they must take when working with these materials.

1910.151(c) Medical Services and first aid - Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

1910.132 General Requirements for personal protective equipment outlines the need to perform a workplace hazard assessment and ensure that employees are trained on the prescribed PPE.

1910.133 Eye and Face Protection must be worn when exposed to liquid chemicals, acidic or caustic liquid and chemical gases and vapors.

1910.134 Respiratory Protection standard will apply when respirators are required to be worn. Note: if voluntary use of respirators is allowed, portions of this standard are applicable.

Additional Resources:

Workplace Hazard Assessment Program offers no cost, non-regulatory health and safety evaluations in Connecticut Workplaces, State of Connecticut Department of Public Health (DPH) at (860) 509-7740 or www.ct.gov/dph/occupationalhealth

Recommendations for Preventing Pool Chemical-Associated Injuries, Centers for Disease Control and Prevention (CDC). <http://www.cdc.gov/healthywater/swimming/pools/preventing-pool-chemical-injuries.html>

Pool Chemical Safety: Use (Poster) Centers for Disease Control and Prevention (CDC).

Pool Chemical Safety: Storage (Poster) <http://www.cdc.gov/healthywater/pdf/swimming/resources>

Pool Operator Training Courses, National Swimming Pool Foundation (NSPF)
<http://nspf.org/en/cpo/cposchedule.aspx>

Information in this fact sheet was extracted in part from the Centers for Disease Control and Prevention (CDC) and United States Department of Labor, Occupational Safety and Health Administration (OSHA)

06/01/13