

Sodium Hypochlorite Release Fact Sheet

What is Sodium Hypochlorite?

Sodium hypochlorite is a chemical compound with the formula NaOCl. Sodium hypochlorite solutions in various aqueous concentrations are frequently used in disinfectant processes, drinking water treatment applications, swimming pool/hot tub sanitation, pressure washing, laundry, bleaching applications and many other applications. It is commonly referred to as bleach. Industrial grades of solution typically contain a percentage of sodium hydroxide for stability.

Warning Signs of a Sodium Hypochlorite Release

Sodium hypochlorite solutions are normally colorless to light yellow liquid. The odor threshold is approximately 0.9 mg/m³. The characteristic strong bleach odor associated with sodium hypochlorite is hypochlorous acid (not chlorine) for which there is no established exposure limits. However, the American Industrial Hygiene Association (AIHA) recommends an exposure level for sodium hypochlorite solutions at 2 mg/m³ as a 15-minute time weighted average, as stated in their Workplace Environmental Exposure Level (WEEL) Guide.

Physical Properties of Sodium Hypochlorite

Sodium hypochlorite solutions vary widely in concentration. Household sodium hypochlorite solution typical concentration is between 3% and 8%, while industrial and commercial grade sodium hypochlorite solution concentration is between 10% and 17%.

Stability of sodium hypochlorite solutions decrease with increased concentration, heat, ultra-violet light exposure, a decrease in pH and the contamination of metals. Sodium hypochlorite is a strong oxidizing agent that will readily react with acids, organics and heavy metals. It must not be mixed with acids or acidic compounds. Excess acidity can consume the sodium hydroxide present in the bleach solution which causes the hypochlorite ion to form chlorine gas and evolve from the solution. A chlorine release can result. (For information about chlorine, refer to CI's Chlorine Fact Sheet). Sodium hypochlorite solutions must never be mixed with any ammonia solutions or solids or solutions containing ammonia salts such as those found in many common household cleaners except in controlled conditions designed specifically for this situation. Both toxic and hazardous gases can be formed. Solutions of sodium hypochlorite may react violently with organic compounds including greases, oils, fuels, etc.

Sodium hypochlorite is toxic for aquatic life.

Effects of Exposure to Sodium Hypochlorite

Sodium hypochlorite solution may affect the body through ingestion, inhalation or contact with the skin or eyes. Irritation and the severity of the damaging effects increase with the strength of solution and time of exposure.

Sodium hypochlorite solution is corrosive. It may cause irreversible eye damage or skin burns, and is harmful if swallowed or absorbed through skin. Do not get in eyes, on skin or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

For personal protective equipment and first aid treatments for sodium hypochlorite exposure, refer to a sodium hypochlorite Safety Data Sheet and medical personnel. Responders should take the necessary precautions to protect themselves from any exposure to sodium hypochlorite while administering first aid and should move the victim from any contaminated area as quickly as possible.

Emergency Response

Evacuate area. Clear non-emergency personnel from area. Those affected should listen to local first response officials and news outlets for guidance during an emergency.

More Information

Local emergency phone number for immediate medical attention in the U.S.: 911

Regional Poison Control Center phone number in the U.S.: 1-800-222-1222

Refer to a Sodium Hypochlorite Safety Data Sheet (SDS)

The information provided in this Fact Sheet is not meant to be complete. For more information on first aid, refer to your Safety Data Sheet (SDS) for sodium hypochlorite. Visit <https://bookstore.chlorineinstitute.org/> to download free copies of pertinent pamphlets and videos, including Chlorine Institute Pamphlet 96) The Sodium Hypochlorite Manual, the Handling Sodium Hypochlorite Safely Video, the Handling Sodium Hypochlorite Wall Chart, and the Accidental Mixing Video.