

## Reactive Chemistry Incidents Can Happen Anywhere December 2020



▲ Most cleaning products contain chemical ingredients that can react with certain materials, especially other cleaning products.

**R**eactive chemistry incidents are a concern even if no intentional chemical reactions take place at your workplace. These incidents can happen almost anywhere.

On Nov. 7, 2019, in Burlington, MA, a restaurant employee accidentally spilled a cleaner called Scale Kleen on the floor. Later, another employee began to clean the floor using a different cleaner called Super 8. According to the safety data sheets (SDSs), Super 8 contains nearly 10% sodium hypochlorite (bleach) — a higher concentration than the usual household bleach. Scale Kleen contains both nitric and phosphoric acids, at a total concentration of nearly 40%. The materials reacted and released toxic chlorine gas. The restaurant was evacuated but, unfortunately, the restaurant manager was overcome by the fumes and died in the hospital.

A few days later, on Nov. 19, employees at a restaurant in nearby Woburn, MA, mixed two cleaning solutions that also released toxic fumes. The restaurant was evacuated and three people were hospitalized as a precaution.

Boerner, L. K., "Accidental Mix of Bleach and Acid Kills Buffalo Wild Wings Employee," *Chemical & Engineering News*, 97 (45), p. 6 (Nov. 2019).

### Did You Know?

- Many materials used in cleaning and maintenance operations can react with other substances. Reactivity may be one of the reasons some products make good cleaning agents.
- The reactivity of bleach with other materials, such as acids, is a known hazard. The June 2016 Beacon describes the reaction of sodium hypochlorite bleach with ammonia to generate toxic chloramines.
- Potentially reactive cleaning materials may contact your process chemicals if they are not completely removed from the equipment following cleaning operations.

### What Can You Do?

- Read the SDSs for all materials used in your workplace, including those used for cleaning, maintenance, lubrication, water treatment, and utilities such as heating or cooling fluids.
- Recognize that SDSs cannot describe all potential reaction hazards of a material. Ask a chemist or other technical expert about potential reactivity hazards of the specific materials in your plant.
- Consider all potential reactivity hazards when introducing a new material into your plant.
- Follow cleaning procedures rigorously. Make sure all cleaning agents have been completely removed before returning equipment to service.
- Never mix materials without understanding potential reactivity hazards and necessary safeguards.
- Read the June 2016 Beacon for more information about bleach reactivity hazards.
- Share this Beacon with family and friends — this type of incident can happen anywhere, including your home!

**Never mix materials unless you know it is safe!**