COLUMBIA UNIVERSITY
IN THE CITY OF NEW YORK

Bleach Incompatibilities

FAQ Sheet

Bleach serves as a widely employed disinfectant in both household and laboratory settings- playing a crucial role in surface cleansing and the decontamination of potentially infectious liquid-regulated medical waste.

The reactivity of bleach with other substances is attributed to its composition, which includes 5-10% sodium hypochlorite. This compound serves as an oxidizing agent, contributing to its propensity to react with various chemical groups. The consequence of mixing bleach with incompatible materials can result in the release of harmful substances, including chlorine gas and chloroform gas (See the graphic below for incompatible materials).

Bleach is corrosive and reacts with many chemicals!

Incompatibility Quick Guide

Acidic Compounds

Guanidinium Salts (found in many commercial buffers)

Compounds containing ammonia

Organic Chemicals

Metals

Hydrogen Peroxide

Reducing agents

Oxidizing agents

Direct contact with sunlight or UV light

Release of toxic gases (Chlorine, Chlorine Dioxide, Hydrogen Cyanide)

Formation of explosive compounds

Formation of chlorinated organics

Release of oxygen gas, potentially causing the rupture of a closed system

Evolution of heat may cause splashing or boiling.

Tips for Handling Bleach

- Exercise caution and ensure the proper donning of laboratory attire and personal protective equipment (PPE) at all times such as lab coats, gloves, and goggles.
- Always affix labels to any flasks or containers within the laboratory, indicating and indicate their contents
- Refrain from combining bleach with any unidentified mixtures, even if there is a belief that they may contain biological hazards
- Be mindful of incompatible materials when using bleach in laboratories

By following these practices, no reactive surprises will occur and everyone will be kept safe in the laboratory. Please feel free to contact EH&S for assistance with unknown mixtures!

Fun FAQ!

Bleach goes bad after 6 months. Be sure to label all containers with the expiry date

Have more questions? Reach out to EH&S at Labsafety@columbia.edu or give us a call

CUIMC: (212) 305 - 6780
Manhattanville/Morningside: (212) 854 - 8749

The Chlorine Institute. n.d. “Sodium Hypochlorite.” The Chlorine Institute. https://www.chlorineinstitute.org/stewardship/sodium-hypochlorite/.

“SODIUM HYPOCHLORITEINCOMPATIBILITY CHART.” The Chlorine Institute, www.chlorineinstitute.org/pub/?id=2CA904FC-2354-D714-51A7-2CFD6C4DE8E6. Accessed 10 Nov. 2023.