

# CLOSE ENCOUNTERS OF THE LAB KIND

## THE SANTAYANA REPORT

*George Santayana was a Spanish-American philosopher, essayist, poet, and novelist. In 1905, he penned the famous aphorism “those who cannot remember the past are condemned to repeat it.” More than a century later, the saying reverberates with professionals the world over. The following is a summary of a recent incident at Columbia University. The information presented is intended to provide awareness and help readers plan against the occurrence of a similar situation in their laboratory or work area.*

### Read All About It!

When handed a new product the first thing we do is read the manual and look at the warning labels, right? Unfortunately, this approach is atypical and failing to do so can lead to a serious incident.

Recently, a laboratory inadvertently created chlorine gas when a guanidine hydrochloride containing buffer solution and bleach were mixed together and poured down the drain. When the laboratory noticed the pungent, irritating odor of chlorine, they immediately flushed the drain with water and opened the windows to help ventilate the space. Fortunately, no one was made ill by the situation.

The lab was extracting DNA from cell culture and used a new “miniprep” kit that contained a guanidine hydrochloride buffer. After completing the extraction the researcher deactivated the remaining cell culture with bleach and poured the solution down the drain, a standard practice. However, the resulting chemical reaction generated chlorine gas inside the sink! Fortunately, chlorine is heavier than air and little gas was produced, so most of the gas stayed within the sink and no one was made ill by the situation.

The kit’s warning label stated that the buffer solution was chemically incompatible with bleach, but the researcher had not read the label before using the kit. In retrospect, this incident could have been prevented if the researcher read the kit’s warning label and instructions before proceeding, and used an alternative disinfectant to deactivate the remaining cell culture.

### Lessons Learned

- Heeding the manufacturer’s instructions and warnings when using a product, even when part of an established and routine protocol, can be the difference between completing an experiment safely or not.
- An alternative disinfectant to bleach should be used when deactivating guanidine hydrochloride containing solutions.

For further information, or to view previous Santayana Reports, please visit our [lessons learned website](#). For any other safety related matter, please contact the [EH&S office](#).