

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.

The Methylene (Chloride) Blues

Three liters of methylene chloride (dichloromethane), a chlorinated solvent suspected of causing cancer in humans, was spilled in a laboratory during a recent incident at the University. After re-filling a four liter glass bottle from a 20 liter drum a research scientist placed the glass bottle on the bare laboratory floor, where it cracked and released its contents. Floor tiles, boxes, chemical containers, and the researcher’s shoes were all damaged after coming into contact with the solvent. Within a few minutes, the solvent evaporated and filled the laboratory air with a hazardous concentration of chemical vapor. The laboratory was closed for several hours until air monitoring measurements taken by Environmental Health & Safety (EH&S) indicated the laboratory was safe to reoccupy.

Lessons Learned

- Always use care when handling glass containers. For safety and compliance reasons, glass containers must not be placed on the laboratory floor. The New York City Fire Code prohibits glass containers from being stored on the laboratory floor.
- Always verify the integrity of a container before filling it with a hazardous material. Over time and with repeated use chemical storage containers can degrade or develop hairline fractures, which make them susceptible to leaks or failure when even light forces are applied.
- Always consider the use of secondary containment, especially when transferring hazardous materials from one container to another. Secondary containment, which can typically be in the form of a plastic bin or tote, can capture spilled materials and offer the containers being handled additional protection. If chemical storage on the floor is absolutely necessary, secondary containment must be used. Dense plastics, such as high density polyethylene (HDPE), are generally recommended for these purposes.

For further information on this or any other safety related matter, please visit www.ehs.columbia.edu.