

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.

Pop Goes the Monomer

A hazardous waste container became over-pressurized during a recent after-hours incident and ruptured, spraying the internal contents on surfaces and equipment around the laboratory. Fortunately, no researchers were in close proximity to the container at the time of the incident and were all unharmed. The hazardous waste container held methyl methacrylate (MMA), a monomer, and benzoyl peroxide, an organic peroxide. The two chemicals reacted adversely, leading the MMA to polymerize and generate significant amounts of heat and pressure which caused the container to rupture. Laboratory personnel reported the incident to Public Safety who coordinated a hazardous materials spill response with EH&S.

A monomer such as MMA can rapidly polymerize when overexposed to a combination of oxygen, pressure, heat, or when mixed with an incompatible material. In this case, the incompatible material, benzoyl peroxide, initiated the rapid polymerization.

Lessons Learned

- Care must be taken to ensure that hazardous waste products will not react adversely after being placed into a container. Chemical compatibility information can be obtained by referring to safety data sheets, available from the chemical manufacturer or through the University’s [website](#).
- MMA is a reactive chemical that must be stored and handled with care. It is typically stable under normal storage conditions, but can polymerize when overexposed to oxygen, pressure, heat or when in contact with an incompatible material. Unintended contact with acids, bases, oxidizing agents, reducing agents, ultraviolet light, sunlight, free-radical initiators, and organic peroxides should be avoided.

For further information on this or any other safety related matter, please contact the [EH&S office](#).